THE BULLETIN

of the

AMERICAN ASSOCIATION

of

NURSE ANESTHETISTS

AUGUST

1941

VOLUME 9 NUMBER 3

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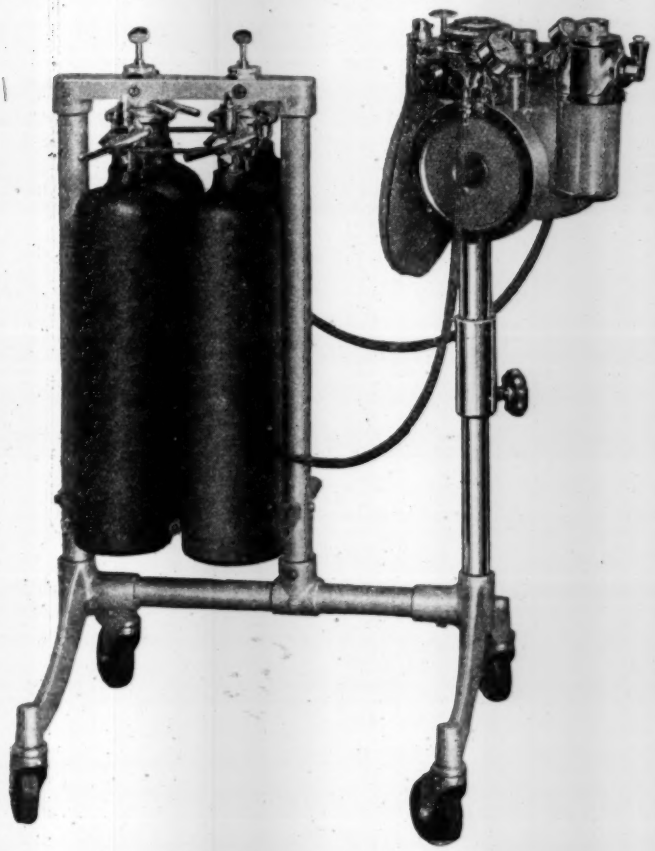

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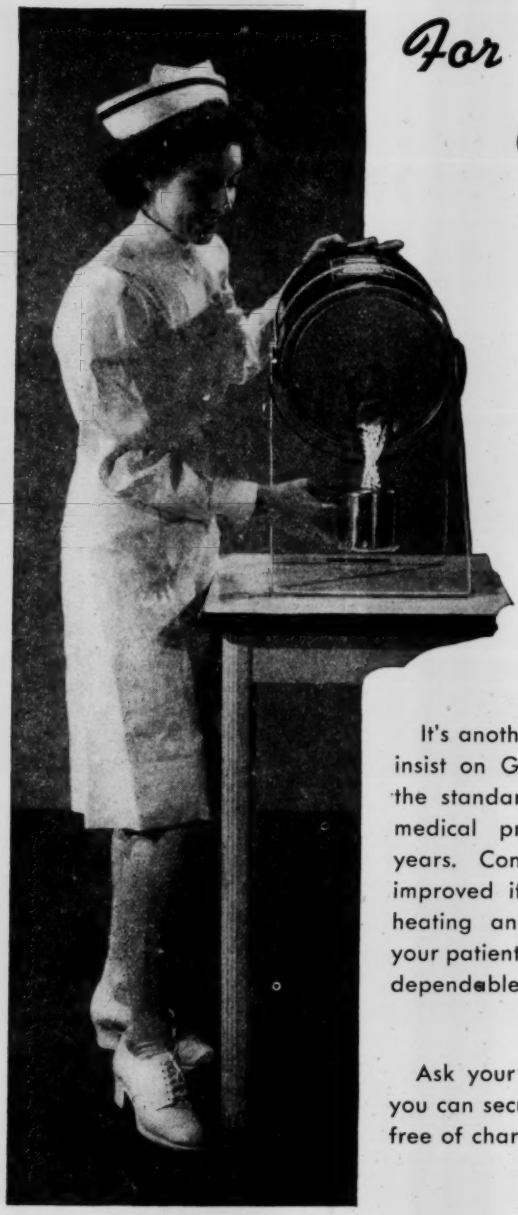

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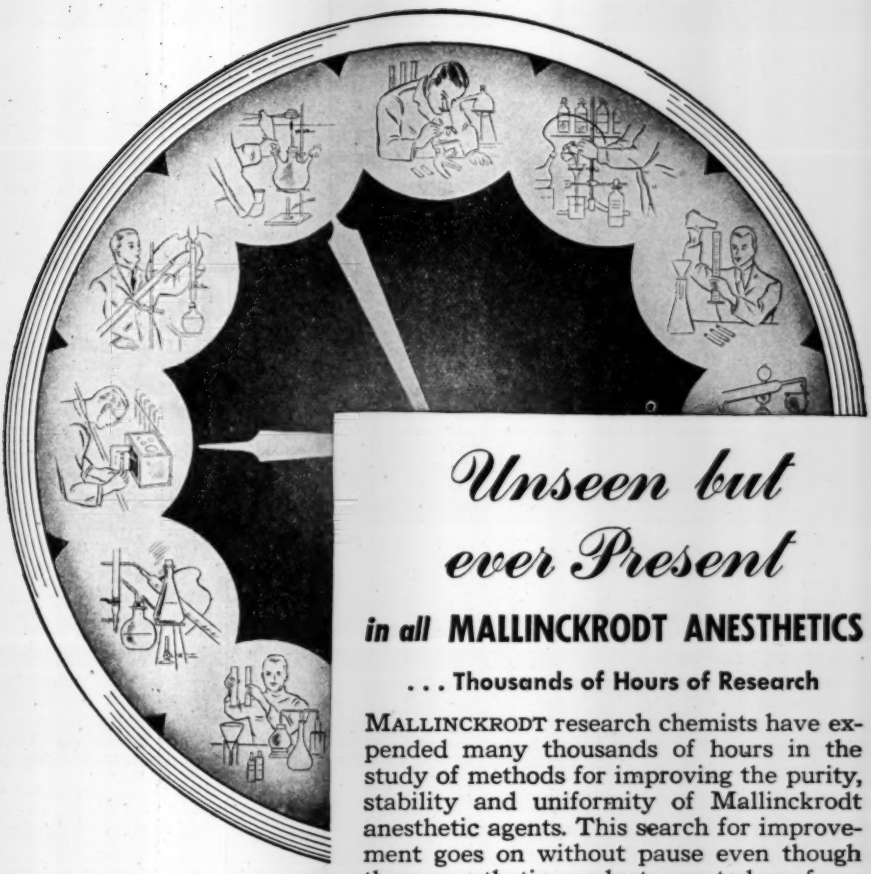

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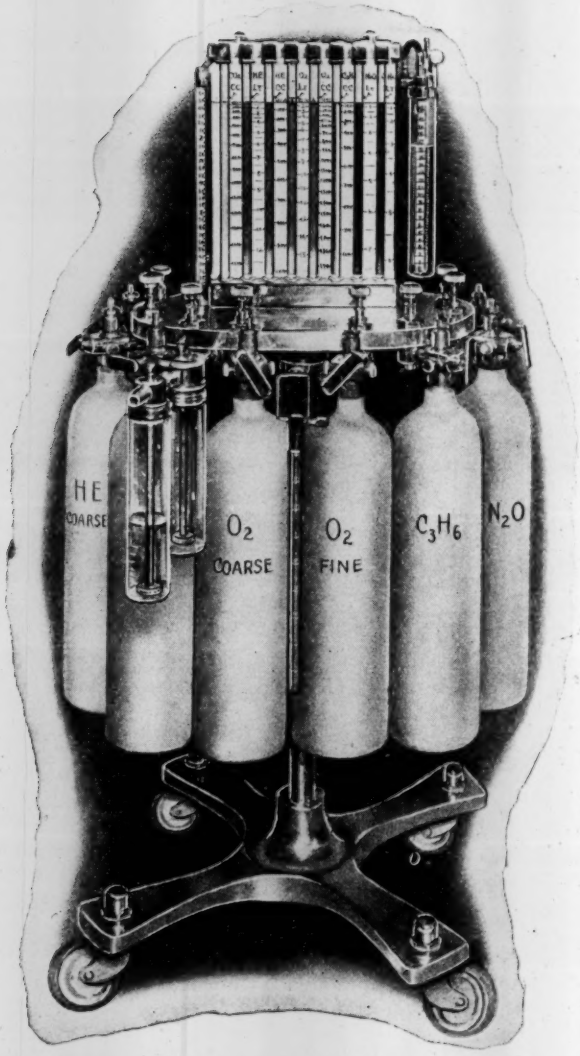

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BULLETIN OF THE AMERICAN ASSOCIATION OF NURSE ANESTHETISTS

The Bulletin of the American Association of Nurse Anesthetists is published by the American Association of Nurse Anesthetists; Executive, Editorial and Business Offices, 2065 Adelbert Road, Cleveland, Ohio.

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The Bulletin of the American Association of Nurse Anesthetists

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THE CONTENTS

THE EDUCATIONAL OBJECTIVES OF THE AMERICAN ASSOCIATION OF NURSE ANESTHETISTS

AGATHA C. HODGINS

"When man begins to weave, the gods provide the thread."

(Greek proverb)

Read at the third annual meeting of the Southeastern Assembly of Nurse Anesthetists, held in New Orleans, April 17-18, 1941.

This paper, like Caesar's Gaul, is divided into three parts—its only link to fame. Briefly these are: First, Contributions of the Past; Second, Responsibilities of the Present; Third, The Challenge of the Future.

Before discussion of these divisions let us consider what is implied, when we write or utter, as we so often glibly do, the word "objective"—a word that never in its history has been put to such wide and varied usage—good and bad, in import. We all associate, and rightly, the word in relation to some antecedent thought concept, which matures into a definite plan or project. Such a plan to be significant and effective must have engrafted on it definite objectives, constructive in form and capable of release as incentives to useful activities. The plan may be a noble plan, an excellent plan, a useful plan, or fortunately a plan which combines elements of all these qualities. It may be a large plan, involving many persons, important in its influence and with far-reaching objectives; or it may be a simple plan, concerned with attainment of a single objective. It may be an unworthy plan—with definitely harmful objectives—but we are *not* concerned with such.

While the plan concept is basically subjective—a creation of mind — it must, as stated, to be effective have attached to it certain *concrete* objectives to be striven for and accomplished. Creation of a plan without objectives would be purposeless; objectives without a plan, futile. The type of organization formed to implement the purposes of the plan, and designed to secure its objectives, depends largely on the exercise of creative thought—subjective; and on the successful execution of practical activities—objective.

Ultimate realization of objectives is never completely fulfilled, else the urge for creation of still better forms of expression, more excellent service and finer objectives would not exist; and exist it does and must, if continued progress is to be made. Organizations, like persons, cannot stand still—it is either a forward or a backward process, either loss or gain. Because this is so, the successful person, or the progressive organization, subscribes to a way of life which embraces the resolution of pressing forward from the goal set, to one still higher—from service given to service still better. Thus through determined effort the fruits of labor gained are passed on in continuity from one generation to another. This then is the task—this the burden that must be assumed by the membership of an organization, devoted to making secure in perpetuity the work they represent and serve.

On this brief general premise, we postulate that the Association to which we belong rightly claims, by reason of the essential importance of the work it serves, objectives it is committed to accomplish; responsibility assumed for creating a still wider field of usefulness—its part in the task of perpetuating, in organization-

al form, the vital work of anesthesiology.

In evaluating gifts from the past, it is difficult to determine when and where the thought concept which prompted the creation of this plan of service originated; still more difficult to estimate justly the value of contributions made toward establishing the value and usefulness of the plan conceived; and equally hard to rate the efforts which went into materializing this nebulous plan into a force which later resulted in the organzation of our present Association.

Consideration of these points leads us into the first division of the subject proper of this paper—the origin of nurse anesthetist service, and its function prior to organization. In discussing this I shall have to apologize in advance for the necessity of quoting myself, not because I would not rather have better, but because other written references extant to the period are not available. No attempt will be made to go deeply into this early history—that is a subject deserving of careful and special handling; and any references cited will be those that have to do with significant phases in the *origin* of nurse anesthetist service, and early attempts to give it objectivity as an entity in hospital service.

While we would all like to know with certainty the name of the first nurse anesthetist, so that we might give to her prior honor, we reluctantly admit there still remains a veil of mystery over this lady. However, it is an established fact that Alice MacGaw was the first nurse anesthetist to appear in authentic history, and Doctor Mayo the first surgeon to appoint a nurse anesthetist on his staff. Miss MacGaw was also the first nurse anesthetist to compile and have published an article reviewing her series of ether anesthesias—drop ether method, for which the Mayo Clinic was at that time justly famous.

It was also a nurse anesthetist who was selected by another famous surgeon (Doctor Crile) and who, as far as I know or can learn (I write cautiously—looking to the East and West and the Islands of the Sea) was the first nurse anesthetist to develop a technique of gas-oxygen anesthesia for general surgical work, inclusive of the use of carbon dioxide-oxygen therapy. It was also the hospital of which Doctor Crile was then surgeon-in-chief, the Lakeside (now University Hospitals of Cleveland) that founded, (and here I am on firmer historical ground), the first school of anesthesia with this same nurse anesthetist in chage. This school, by reason of its organizational form; teaching faculty; adequate educational requirements for entrance; defined course of instruction, and awarding of a certificate upon satisfactory completion of the prescribed course, is set apart as a *school* of anesthesia, and differentiated from other and possibly earlier centers of instruction —*none* of which, so far as I can learn, were designated as, or fulfilled the distinct function of such a school per se.

This school, first known as the Lakeside Hospital School of Anesthesia, has from its inception held a high place as an organized center for teaching anesthesiology, contributing much to the education of nurse anesthetists, and furthering, through the work of its graduates, the progress and efficiency of anesthesia service throughout this country. From this *first* school of anesthesia have sprung other schools, doing equally excellent work, and contributing in corresponding degree to this form of hospital service. One of these—shall we say related schools—has in recent years

made notable contributions in teaching material, of which we are all proud.

The measure of success attending the development of nurse anesthetist service, at this time and in this place, was largely due to the help, encouragement and *sound* education given by Doctor Crile to the nurse anesthetist into whose hands he had entrusted this work. Another equally needed and important gift to the success of the school was the support extended and the interest taken in this pioneer effort by the Trustees and Superintendent of the hospital in which it originated. In the final analysis, nurse anesthetists have never had, in their early history, and continuing on to the present day, more staunch supporters or better friends—certainly none more deserving of the gratitude and appreciation of our group. I hope this contribution will be remembered and treasured, in the history of our Association.

The above circumstances, related because of their vital place in the history of our work, are synonymous with many more like situations. In point of fact, one of the outstanding features of this early period was the acknowledgment and belief (by those appointing them) of the ability of nurse anesthetists to carry on a work of such great importance; and the measuring up to this belief and trust by those so chosen. The tradition of loyalty and service thus established should, and we believe *is* and will *always* be the heart of our organization—a motivating force in its activities.

In 1909 or thereabouts, Florence Henderson, Miss MacGaw's successor, was invited to give at a biennial convention of the American Nurses' Association a paper on *ether* versus gas anesthesia, and I, as an exponent of gas-oxygen, was invited to discuss her paper. I regretfully record that while Miss Henderson and myself both regarded our papers, to put it modestly, well above the average, we were evidently quite alone in this opinion, and the appearance of two supposedly famous pioneers caused not a ripple on the surface of that convention, doubtless due to the fact, that in accomplishing pioneers, the American Nurses' Association is ne plus ultra and so although we thought we were good, we were apparently not good enough.

In 1914 a war service unit was formed from Lakeside Hospital for work in France. The unit, financed by Mr. Samuel Mather and Mr. H. M. Hanna of Cleveland, and in charge of Doctor Crile, left in December, 1914, for service in the American Ambulance Hospital, Neuilley, Paris, France. Attached to this unit were three anesthetists—the writer and two members of her staff. The assignment of this anesthesia unit was to introduce gas-oxygen in war surgery, from that base hospital. The fortunate result was that of being able to successfully accomplish this assignment both on this special unit, and later, on the French surgical division of the American Ambulance Hospital. Thus, nurse anesthetists were certainly among the first, if not the first, from this country in service during the war of 1914. Later, when America entered the war, this service was greatly multiplied and nurse anesthetists from all over the country were sent to France to serve in base hospitals as anesthetists—and a very excellent record they made.

Somewhere between 1912 and 1920, possibly slightly before this date, but more or less coincidental with the increasing popularity of nurse anesthetist service, agitation against this

form of service was started and maintained with sporadic energy, by a group of medical and dental anesthetists. This topic is here introduced, not with any idea of enlarging upon or entering into critical discussion of this campaign, but to state two plain facts which have had a bearing on making more secure the legal status of nurse anesthetists. Briefly related, these two facts are, first: the passing in 1918 of Section 1286-2 by the Ohio legislature. This bill was framed to give a degree of legal security to the qualified nurse anesthetist administering anesthetic drugs under the direction and in the presence of a licensed physician. In spite of constant efforts on the part of opponents to nurse anesthetist service to annul it, the bill has continued in force to this day. The second fact was the winning of a favorable verdict in the suit brought against Saint Vincent Hospital, Los Angeles, California, and Miss Dagmar Nelson, nurse anesthetist, by a representative of a group of medical anesthetists. This suit, taken by the plaintiff after defeat in the lower court, to the Superior Court of California, was decided in favor of the defendant, and Miss Nelson is still pursuing her work as an anesthetist. In both these cases the surgeons, particularly Doctor Crile and Doctor Lower of Ohio; Doctor Hunt of California; other hospitals in both these states and throughout the country—most specifically the University Hospitals of Cleveland and the Saint Vincent Hospital in California—assumed the responsibility for defending the right of the qualified nurse anesthetist, under existing legal provision, to administer anesthetics.

Again was demonstrated in most practical fashion, the belief (by those most concerned) in the right of the qualified nurse anesthetist to pursue her profession and have legal security against interference with that right. Certainly if the services of nurse anesthetists had not been desired and satisfactory, no such support would have been extended. The process of clarifying this situation to a still greater degree, thereby making the professional status of the qualified nurse anesthetist more clearly defined and secure, is a duty which in large measure *now* belongs within the present function of the American Association of Nurse Anesthetists, as an important objective to be steadily worked for.

Somewhere between 1916 and 1919 a request was made to Doctor Crile for the preparation of a "Section on Gas-Oxygen" for publication in the "Oxford Surgery"; this in turn was assigned by Doctor Crile to this writer, and with the collaboration of Doctor Crile's editor, Miss Rowland, and the artist on his staff, the late Mr. Brownlow, the article was prepared and accepted. While this article came under the critical flail of the then leading antagonist to nurse anesthetist service, favorable comment was passed upon it by the "London Lancet," so it evidently possessed a degree of merit and value. Contributions were also made, as requested, to the work then so notably accomplished by Doctor Crile in the development of his epoch-making Anoci-Association theory, as applied to the science of surgery.

It must be remembered that at this time there did not exist for study and teaching use the wealth of excellent material now available on the subject of anesthesiology. Because of comparative meagerness of teaching material, it was necessary to compile, for the use of my students, a complete set of teaching notes, incorporating into such the current contributions to anesthesiology, thus cov-

ering in more explicit and comprehensive manner the study material necessary in making the teaching of this subject clearer to the student. This single early record of endeavor to forge a way of education for nurses interested in taking up this important service, could be multiplied all over the country in schools of anesthesia, under the supervision of nurse anesthetist instructors. We are here making *no* comparison on systems of teaching but stating simple *facts* of experience.

Also this topic is here introduced *only* to emphasize the fact that nurse anesthetist educators have always held, as a primary responsibility and as an important objective, the education of student anesthetists—also to refute in some small measure the propaganda—then existing and still used—that the nurse anesthetist was and is, so to speak, a rule of thumb technician.

In 1921, bringing another wave of agitation against nurse anesthetists, it seemed wise that when opportunity was afforded to present to interested groups the case for nurse anesthetists, such should be embraced. With this in mind the writer accepted an invitation to give a paper on the topic of "Nurse Anesthetist Service" before the Cleveland division of The League of Nursing Education. In this paper I outlined the arguments advanced by the medical anesthetists against nurse anesthetist service, offering in rebuttal the reasons why this service was valuable and should be supported. While I thought I was a pretty fair advocate, and presented a good case, I was apparently not yet *good enough* for the American Nurses' Association. The only result of this—if result it can be called —was a much later invitation from a group of nurse anesthetists, evidently influenced by a group within the American Nurses' Association, to organize as a section in that association "Office Nurses and Nurse Anesthetists." Knowledge of the possibility of this unfortunate development led to my paper on "The Nurse Anesthetist," read before the biennial convention of the American Nurses' Association in 1930. This paper did, I sincerely believe, help to make nurse anesthetists there present realize the importance of nurse anesthetist service as a separate division of hospital service—not a section of nursing or related in any sense (except that office nurses sometimes are called upon to administer anesthetics) to this division of nursing. Be that as it may, the resolution, evidently prepared to accomplish this sectional grouping, was not put to motion and the section was *not* formed. There is here no intention of judging in the least degree the decision made by the American Nurses' Association in regard to the place accorded our smaller specialized group. Nurse anesthetists have always been and always will be keenly appreciative of the place and value of the magnificent organization to which they owe their basic training.

In my paper I emphasized the importance of the administration of anesthetics as a separate service; also logically presented and answered in rebuttal current propaganda against this form of service and definitely outlined *responsibilities* of the nurse anesthetist group relative to instituting protective measures. I stated that—"improvement of the present anesthetists themselves. If the work situation is in the hands of the nurse is to be properly safeguarded and hoped-for progress attained, it is necessary that remedies be applied to certain detrimental conditions now acknowledgedly existing. It would seem that the first step should be the awakening of deeper interest and the

development of constructive leadership. Following in logical order would be: self-organization, emphasis to be placed on the establishment of educational standards; postgraduate schools of anesthesia, established or to be established, required to conform to an accepted criterion of education; state registration, putting the right of the nurse anesthetist to practice her vocation beyond criticism; constant effort toward improving the quality of the work by means of study and research, thus affording still greater protection to the patient; dissemination of information gained through proper channels."

With the quoting of this pronouncement we reach the end of the first part of this theme. The purpose of inserting this quotation is to make clear to those unfamiliar, that before formal organization of the nurse anesthetist group took place, there existed in the minds of those of us deeply interested in furthering the service, a definite plan for its promotion, improvement, and perpetuation, on the only basis a *work* of such vital importance should be established, namely by the formation of an association concerned in and solely devoted to, its advancement.

We now enter into the second, better known, and more pertinent division of our theme; the *accompli fait* of changing the nurse anesthetist group into an organized association pledged to promote, sustain, and improve the objects of the service—a burden which had to this time been carried by surgeons, hospitals and interested individual anesthetists and smaller groups of anesthetists devoted to this work.

On June 17th, 1931, synchronizing the event with the formal opening of a group of buildings which were from that date on to be known as "The University Hospitals of Cleveland," a meeting, called by this writer, was held in the class room of the anesthesia department of the new Lakeside division of this greater group, which resulted in the organization of what was then designated as "The National Association of Nurse Anesthetists"now the "American Association of Nurse Anesthetists." At this meeting were adopted, as the purpose for, and object of, this new association, educational objectives which place it in the category and give it status as an educational association attached, as a separate unit of specialized service, in the wider field of organized hospital service.

It is an aphorism to state, that in discussing the objectives of an association devoted to promoting a work requiring changing presentation of material, to meet its progress; that all its objectives are broadly educational in character, and might therefore come within the scope of this discussion. Assuredly this paper has not such ambitious aims, but is concerned solely with a pertinent review of such educational objectives as are delegated to the Committee on Education, in the By-laws, and impinging activities, which by reason of their relationship to the topic in hand cannot be separated from it—if the matter as a whole is to be intelligently presented.

While the six "objects" given in the constitution, or, articles of incorporation, could, as stated, be broadly considered educational, there are three which are specifically in this classification. For the sake of clarity I quote these three v e r b a t i m—"1. To advance the Science and Art of Anesthesiology." The second objective definitely within the scope of this discussion reads, "2. To develop educational standards and technique in the administration of anesthetics;"

and the last object, "3. To promulgate an educational program with the object of disseminating through proper channels the importance of the proper administration of anesthetics." To complete the picture we supplement these given "objects" of organization with Section 15, Article XV of the By-laws, wherein the function and scope of the Educational Committee is defined, "This committee shall assist in the development of educational standards in accordance with plans approved by the Board of Trustees, and such other educational projects as may be authorized by the Board of Trustees." We have now arranged the ground for consideration of what is involved when we discuss, within the above scope, ways and means to accomplish the educational objectives attached to the three given *objects* and implied in the function of this committee.

Successful carrying through of a project of this magnitude obviously cannot be accomplished by one or even more committees, no matter how efficient and hard working, but requires the efforts of other groups. To make simpler the question of "who is responsible for what?" we will divide those involved into four groups: First, those qualified for the practice of anesthesia and actively engaged in it—namely, the membership. Second, indicated committees appointed by and responsible to the Board of Trustees, for creation, presentation and direction of sanctioned plans to accomplish the "objects" of the organization, and fulfill as indicated the function of the committee. Third, the Board of Trustees, responsible to the membership for such conduct of the affairs of the organization as will insure in continuity, the accomplishment of plans sanctioned by the Board, and released for action to the indicated committee. Fourth, the student group—a group as yet not qualified for membership and therefore, in an organic sense, outside the association, with no responsibilities towards it — but for whom, because of their potential future value to the organization, the association assumes as an educational objective, plans to bring the education given students in schools of anesthesia up to such a minimum standard as will assure adequate education to all.

Apportioning definite parts of this educational program is comparatively easy; securing cooperation and inculcating responsibility for the accomplishment through groups, legitimately the agents for implementing it, is quite another and more difficult problem—the solution of which can only be achieved by stimulated thinking, coordinated planning and concerted action. With this in mind, we shall endeavor to connect the particular "object" of organization with the group responsible for implementing it into action.

It can be asserted without argument, that "object one" contains an objective common to all plans, and constantly effected, for better or worse, by the work of all members. To particularize this general statement is not pertinent to this paper. Everything we do is with the view of advancing the work of anesthesiology.

The second object, viz: "development of educational standards and techniques in the administration of anesthetics" belongs to and can only be implemented through the membership. Fulfillment of this obligation —a continuing process, is therefore, broadly stated, within the function of every clinic *in charge* of a nurse anesthetist, or having nurse anesthetists on the staff. The *association*, through indicated channels, being the

directive agency of, and clearing house for, knowledge gained and techniques of administration of anesthetics perfected in such clinics and released from them. Unless this viewpoint is accepted and this obligation is assumed by the membership, the educational committee of the association faces *too difficult* a problem. It is just as necessary to have an articulate membership as it is important to have educational committee work publicized. An organization is basically sound and truly successful —to the *degree* and *extent* that the majority membership is responsive to its needs and contributes to its program;—to bring this about is one of the *important* objectives attached to all educational plans.

In the sixth "object," which has as its objective the publicizing and circulating of informative material through proper channels such as: presentation of papers at meetings; publicizing of programs of activities; publishing of current scientific data in the official "Bulletin" of the organization, or through other legitimate and available journals. In short, the objectives of this "object" is to make prominent the American Association of Nurse Anesthetists as an educational organization, and to place emphasis on the work contributed to the subject of anesthesiology by its members.

The Committee on Publications, serving all committees and membership alike, is the primary medium through which these objectives are emphasized. The quality of contributions made for publication will decide the place given the association's official journal among other and similar publications. The great objective here is to constantly raise the level of such contributions to a continuing high level of excellence. The only way this can be done effectively is by the contributors exercising discriminating judgment in selection of a topic, and making careful study of and exact research in the subject chosen for presentation. To those of us watching with careful attention the development of this part of our program, the steady improvement in the articles published from the membership is certainly gratifying and encouraging. It can be counted as an index of success in efforts to accomplish in some measure, the ever-widening objective of arousing the intellectual curiosity of a membership on subjects pertinent for study and publication, thus opening up the field for more and better contributions to the "Bulletin."

Incorporated into the "Bulletin" as a section thereof is the "Department of Education"—a medium through which the teaching program of the association is released. As an introductory article, already published, inclusively covered the function, scope and objectives of this department, we will not further particularize here except to state that the value of this section becomes increasingly evident with each issue, and its future holds promise of still greater usefulness.

That the purpose of creating in the minds of our members an increasing awareness of the potential value of the student body has met with some success, is shown by the interest taken in the subject of student education by state associations and individual members. We hope that every effort which has as its object creating a stronger bond of interest between student and graduate groups will be recognized as important in its implication, and encouraged and fostered *wherever* and *whenever* it appears.

This increased interest in the educational program is also evidenced in

more excellent papers presented at state and sectional meetings. Another important objective of such meetings is the interest created in our organization by surgeons and medical anesthetist specialists, who by contributing to such programs have added stimulus and benefit to the meetings.

It seems realistically evident to the writer that responsibility for the comfort and safety of the patient and satisfactoriness of the anesthesia does not vary in any degree *because of* the professional status of the anesthetist. This being *ipso facto* the situation, it would seem that encouragement given in making such service as excellent as possible, and by continuing efforts raise the quality of work done and keep it in progress with advancement of the subject, is the best way to approach this problem. And our only hope of obtaining a constructive solution to the problems inherent in it is by full cooperation with major medical groups also concerned. The Committee on Education acknowledges with appreciation all contributions made by the major medical groups to the educational program of this association.

We have now encompassed discussion of basic objectives which are essentially educational in nature and extent. We have also indicated by inferential interpretation that the constitutional duties of a committee on education involve responsibility to the Board of Trustees for the creation, presentation and direction of an educational program, and release into action of sanctioned plans inherent in such a program. We have also endeavored to relate how well these responsibilities have been met, and to what extent the educational program has progressed.

You are aware, from reading committee reports, that the program planned has not as yet been completely set in motion. Certain essential divisions, concerned with survey and accrediting of schools of anesthesia, examination and certification of qualified students, and official registration in the American Association of Nurse Anesthetists, under to be defined conditions, of member nurse anesthetists—are still in committee under final study. We are hopeful that within the year—optimistically, at the next annual meeting—presentation of this entire program will be made.

A few years ago I wrote a short editorial for the "Bulletin," in which, among other things, I tried to make clear the burden carried by the leaders of our organization; pointing out that the arduous work of carrying on the business of the association was superimposed on busy women actively engaged as practicing anesthetists. I again emphasize here that practically all of the project work of the organization is now carried on through volunteer committees. May I add that I do not believe there is an organization of the size and activity of the American Association of Nurse Anesthetists that has had the degree of devotion given to it by such comparatively small groups of national and state volunteer workers. This responsibility should be more equally divided, and more widely shared. All members of state and sectional associations should cooperate with their officers in the development of state and sectional groups. Attending state and sectional meetings should be considered as important to the success of the meeting as presenting a paper is to the program. Contributions asked for the advancement of state projects should be met by all members to the extent and ability of the individual. State associations and sectional groups should take their

share in helping with national projects. If such a program of interest be made the basis upon which all our work is planned, and the incentive of enthusiastic efforts towards progress, the American Association of Nurse Anesthetists has indeed a splendid future before it.

This brings us to the third and last part of this theme—"The Challenge of the Future." What is it? How shall we meet it?

The history of the past contains the challenge of the future. In historical content the work our organization represents dates back to antiquity. It has been said that "the desire to alleviate pain is as old as man." In this country it is nearly one hundred years (1842) since Crawford Long first administered ether, with the fortunate result of obtaining anesthesia. Nurse anesthetist service, allowing a margin for error, is at least thirty-five years old. The service was originated by surgeons of the highest standing and sponsored by hospitals of equal rating. It has always been in the hands of qualified nurse anesthetists, possessing intelligence and good judgment, and exercising both in relation to the needs of the work. Nurse anesthetist service has therefore come (aside from the formal date of organization) to full maturity, and any other interpretation of its status will tend to delay the accomplishment of its future educational aims.

I have tried in this paper to emphasize the *importance* and *value* of work accomplished *since* organization.

We have said that the challenge of the future is contained in the past. This, literally interpreted, means that if the challenge is to be met, the programs of the past must be consolidated into the plans of the present; and the program of the present widened to include broader plans for the future; as the context of this paper indicates, an educational widening of organizational design—is our objective, and within that objective lies the answer to the challenge now being made to the nurse anesthetist group.

Realistically stated, the challenge is embodied in the progress made in anesthesiology. Within the last fifteen years this subject has made tremendous strides — First, in regard to an aroused interest in scientific research. Second, by the application of the results of this research to problems involved in the administration of anesthetics, results of which are evidenced in the increasing number of newer anesthetics (general and basal) released from scientific study to practical use. Third, the perfecting of techniques of administration of these newer anesthetic combinations. Fourth, the scientific development of apparatus constructed to provide safety and economy in the administration of anesthetics. Fifth, the increased use and better control of gas therapy in indicated medical and surgical cases.

Thus has the field of anesthesiology widened.

This development contains a challenge which the American Association of Nurse Anesthetists is striving to meet through its educational programs — which, as the text of this thesis intimates, is concerned with providing through indicated channels — first, such directive instruction to the practicing nurse anesthetist as will assist her in keeping in pace with progress. Second, stabilizing present systems of instruction now given in schools of anesthesia, and endeavoring to establish a minimum standard of education in such schools—so that the basic training given students will better prepare

them for service after graduation. The first step in this program was taken with the publication of the curriculum of the American Association of Nurse Anesthetists. As stated, the rest of the school program is under way. Third, establishing measures to protect qualified members by instituting *within* the American Assocation of Nurse Anesthetists some form of official registration which will carry with it a title to designate qualifications, and to distinguish between members so qualified — and non-members *not so* qualified.

While these statements broadly summarize the objects of our program, the real answer to the challenge lies in the hands of practicing anesthetists, most specifically in the hands of our members. Acquiring knowledge and using it to the best advantage, is and will always be an individual responsibility. No organization, no matter how efficient and progressive—no program, no matter how well balanced and inclusive, can act as a "Talisman" in giving knowledge without seeking and study—efficiency cannot be secured without effort. The challenge of the future can be met only by study and work. Every hospital clinic in this country contains, within itself, the implements for improvement in the subject practiced. Every one of us has ready at our hand the accumulation of knowledge gained through the years —a free gift to all who seek it. In the seeking and use of this knowledge lies the true answer to the challenge, and the future security and progress of nurse anesthetists depends in large measure on the manner in which each individual member, within her own sphere, meets this challenge. The American Association of Nurse Anesthetists can make secure the future of the membership *only* to the degree and extent that the members themselves realize that making Nurse Anesthetist service *distinguished* for high quality, is a gift that must be given *to* the organization *by* its membership.

The American Association of Nurse Anesthetists asks that *gift* from *each* and *every* one of its members.

Coronado Beach, Florida
April 11, 1941

ANESTHESIA IN NEUROSURGERY

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Read at the annual meeting of the New York State Association of Nurse Anesthetists, held in New York City, May 21-23, 1941

The relationship between the neurosurgeon and his anesthetist is a unique one. Perhaps no surgeon uses anesthesia so sparingly or so simply as does the neurosurgeon; yet, probably no surgeon is so dependent upon his anesthetist as he.

The explanation for this apparent paradox lies in the fact that in neurosurgery the anesthetist fulfills a dual rôle. Not only is she the conventional *narcotist*, but, in addition, if she be good, she is very much of a *physiologist*,—observing, interpreting and reporting to the surgeon physiologic phenomena taking place during the course of the

operation which directly influence the neurosurgeon as to the choice and extent of the procedure he will follow. In operations upon the brain, the surgeon may stop the operation with the tumor only partially removed, to return for a second stage a day or two later, if an experienced anesthetist tells him that she "does not like the way the patient looks;" or he may stay with the tumor and get it completely out in one long, gruelling session if the anesthetist tells him the patient is "all right" for the try.

There is very little or nothing that I can tell anyone in this audience about the administration of anesthesia that you do not already know far better than I. Therefore, I shall touch only briefly upon this first phase of the anesthetist's work dealing with the actual narcotization of the patient; and shall devote most of my time to the other phase of her work having to do with various physiologic factors other than the anesthetizing drug which influence the course of an operation upon the brain, and which the anesthetist may be called upon to recognize and interpret for the guidance of the surgeon during the course of the operation.

The Factor of the Anesthetic

We may take as a starting point in our discussion the fact that brain operations, in general, last a long time. Rarely can any major neurosurgical procedure be completed within an hour. Two and three-hour operations are the rule; five and six-hour operations are very frequent; and occasionally, with large, deeply placed and highly vascular tumors, seven, eight or even nine hours are spent at the operating table. The immediate result of this is that local anesthesia is used whenever possible in neurosurgery, in place of general anesthesia.

Fortunately, surgery of the brain lends itself to local anesthesia extremely well. It is an interesting fact, which many of you may not know, that the skin is practically the only structure which must be narcotized in performing a craniotomy. There are no pain conducting nerve fibres in the bones of the skull (or the periosteum), in the membranes enveloping the brain, or in the brain itself. It is a curious fact that incisions may be made into the brain and parts of it removed—even those parts which receive the pain fibres coming from the rest of the body — without the patient feeling any discomfort.

A second fact favoring the use of local anesthesia for craniotomy is that there are no muscles which must be relaxed, in order for the surgeon to expose the operative field, as is the case with abdominal surgery.

Once the scalp has been well infiltrated, practically the only reason that exists for the use of additional anesthesia is to allay the patient's apprehension, and to keep him quiet during the delicate parts of the operation. In the great majority of instances, these objectives can usually be attained quite satisfactorily by means of a preliminary hypodermic of morphine (1/6 grain to 1/4 grain), and scopolamine (1/300 grain to 1/200 grain), supplemented, if necessary, with avertin or with pentothal. There are very few exceptions to this general rule. In children, however, ether vapor, given by the open drip method, has proved to be the most satisfactory anesthetic; and is practically the sole anesthetic used by us at the Neurological Institute for children. Ether vapor is also used from time to time with uncooperative or violent adults whom the avertin does not control. In general, however, ether is avoided whenever possible, not only because of the length of time during which it must, as a rule, be given;

but also because ether seems to cause cerebral congestion, which in turn increases bleeding, and makes operating more difficult.

Morphine, scopolamine, avertin, pentothal, and ether are, then, the narcotizing drugs which we regularly use at the New York Neurological Institute for our brain operations. They are simple in nature, few in number, and the methods of administering them are no different from the methods used in other fields of surgery. The only difference between their use in neurosurgery and their use in other branches of surgery, is that, with ether, the depth of general anesthesia required in surgery of the brain is much less than is required in other fields.

Now, in addition to the effect of the drug used for anesthesia, which, as you see, in the majority of brain operations plays only a minor rôle, there are other factors peculiar to surgery of the brain which have a direct bearing upon the condition of the patient undergoing an operation upon the brain as observed by the anesthetist. It is the appreciation and interpretation of these factors which help the experienced anesthetist so much in appraising the patient's condition, in anticipating trouble, and in correctly advising the surgeon.

The Factor of Time

The *time* factor is the first which we will consider. As has already

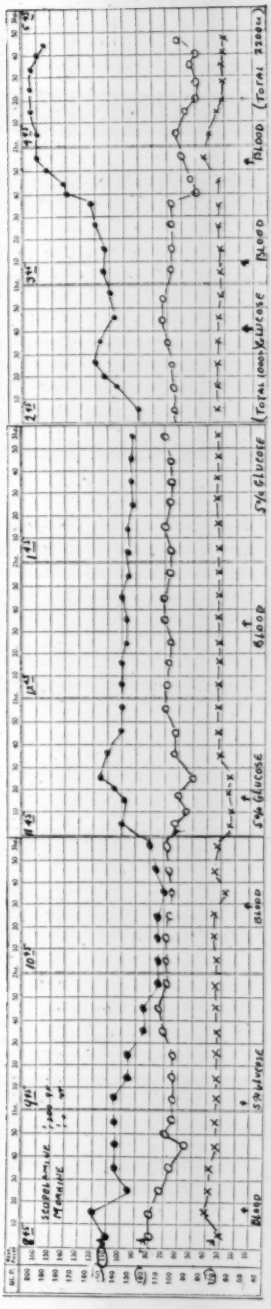


FIG. 1.

The anesthetist's chart of a patient who had a frontal lobe of the brain extirpated, and a large tumor removed under local anesthesia. The operation required over eight hours. Yet note that there occurred no significant fluctuation in blood or pulse pressure; and no rise in pulse rate except when the patient became restless. Note also the large volume of blood and other fluids given the patient to replace those lost.

been stated, operations upon the brain usually last a long time. The influence which this has in the choice of the anesthetic has already been discussed. You have probably assumed, too, that the long operating time with the brain exposed would tend to induce shock, as it certainly would in other parts of the body. Curiously, enough, however, we see very little shock in brain surgery. True surgical shock—that is, primary vasomotor collapse, with collapse of blood pressure levels and the pulse pressure—rarely occurs in brain operations if fluids are replaced as lost, and the patient is shielded from pain. One can extirpate great sections of the brain,—a frontal lobe, or entire posterior half of a cerebral hemisphere,—with hardly a fluctuation in blood pressure, or pulse rate (Figure 1.) Even after severe injuries to the head and brain, with laceration of the brain and hemorrhage into it, a state of shock, such as accompanies such injuries in other parts of the body, does not, as a rule, occur.

There are two situations in neurosurgery, however, under which shock may occur: (1) In operations carried out beneath the frontal lobe in the region of the pituitary gland and the hypothalamus, the vasomoter center, which directly affects blood pressure, may be injured. When this happens, vasomotor collapse occurs and typical surgical shock. 2) In operations performed with the patient in the upright, sitting position, *gravity* plays a rôle in producing a fall of blood pressure.

In general, it may be said that short of five to six hours, the duration of the operation has only a slight effect upon the patient's vital signs and status. Should these appear adversely affected, other factors than the time must be sought.

The Factor of Fluid Loss

A second factor rather peculiar to brain surgery, and which has a very great bearing upon the condition of the patient during a brain operation, is the tremendous loss of body fluids which frequently takes place. Today, in general surgery, with the careful modern technique, operations are regularly performed on almost all parts of the body,—excepting the head and brain—with hardly any loss of blood. Few brain tumor operations, however, are performed in which there is not lost 350 cc. to 500 cc. of blood; and with some of the larger and more vascular tumors as much as 1000 cc. to 1500 cc.

In addition to the loss of blood there also occurs great loss of other body fluids during the long hours in the over-heated operating room under the thick drapes—with, of course, the head partly covered. During the hot summer months, this loss of body fluid may be very, very great. This results partially from perspiration and partly by way of the lungs. Practically all of our patients are given 500 cc. of 5 per cent glucose in Ringer's solution intravenously by slow drip during the course of the operation; and during the longer operations, especially in the summer, they may be given 1500 to 2000 cc. glucose in saline quite apart from any blood which they may get (Figure 1).

Losses of body fluids will be evidenced in the patient's vital signs and reflected in the appearance of the chart by a rising pulse rate and a falling blood pressure. If such changes appear in the vital signs, the possibility that they are due to loss of body fluids must be considered and effective measures taken to counteract them.

Blood may be lost *in two ways* during a brain operation—(1) either as the result of a sudden, violent but

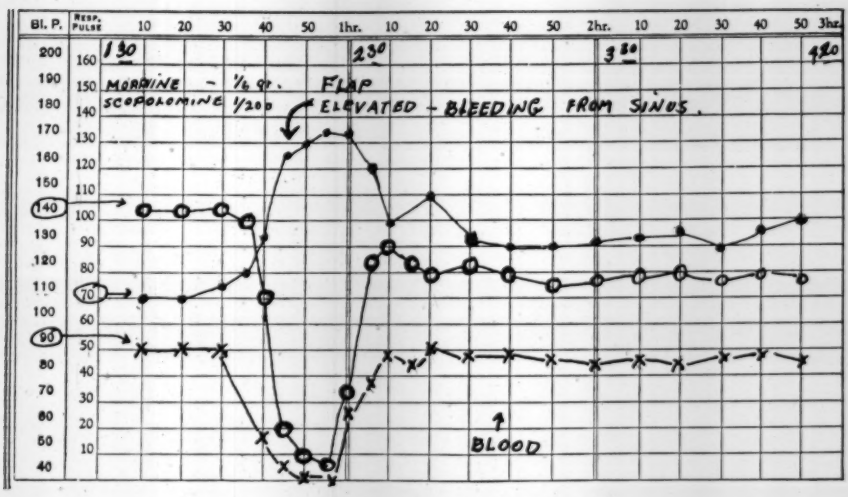


FIG. 2.

Anesthetist's chart showing typical fall of blood following a sudden violent hemorrhage early in the operation. Note that while the blood and pulse pressures dropped alarmingly, they quickly returned to approximately the original levels, even before transfusion. This was due to the fact that the vasomotor system was still fresh, and was able to compensate for the loss of volume in the vascular bed (compare with Fig. 3).

short-lived hemorrhage from some large vessel; (2) as the result of a long-continued oozing from very many small bleeding points. In the first instance there occurs a precipitate drop in the blood pressure and pulse pressure, so that neither may be obtained. This occurs most characteristically while the bone is being sawed and the flap elevated; i. e., during the early stages of the operation. While it is very alarming to observe, such a sudden drop is rarely serious; and, if the bleeding point is soon found and the hemorrhage stopped, the pressures, as a rule, quickly return to their former levels,—even without the benefit of a transfusion. This is particularly true when it occurs in the early stages of the operation and is so because the *vasomotor system*, which controls blood pressure, is still fresh and is able to compensate for the loss of blood volume. However, a transfusion should be given after such a drop, in spite of the return of the blood pressure to original levels, as a prophylactic measure, and in order to relieve the vasomotor system of this extra burden and prevent it from becoming prematurely exhausted during the subsequent stages of the operation (Figure 2).

In the second form of bleeding, where there occurs a general oozing from numerous small fresh bleeding points during several hours' time, the fall of the blood pressure is slow and gradual, and at first is compensated for by increased activity of the vasomotor system. But as the operation continues hour after hour, the vasomotor system itself gradually becomes fatigued, relaxes its effort, and allows the blood pressure levels, and especially the pulse pressure, to fall. In these cases, transfusions will not

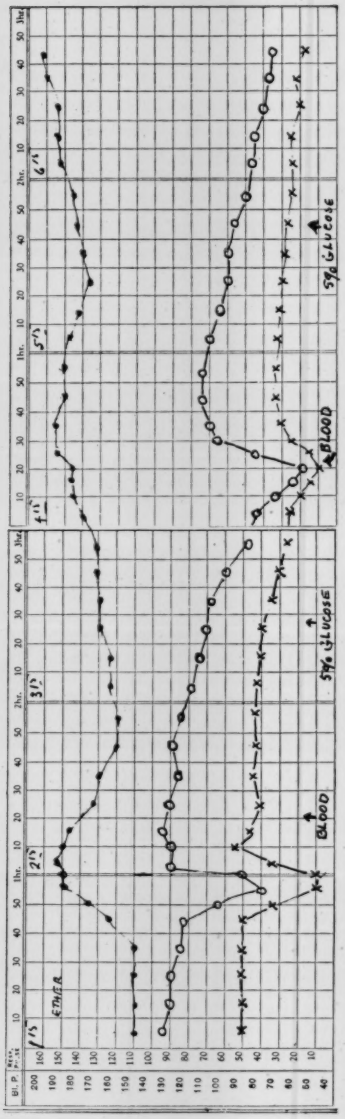


FIG. 3.

A typical chart in an operation where there was persistent oozing from many small bleeding points over a long period of time. Note that the first fall in blood was quickly compensated for by a vigorous vasomotor response, even before blood was replaced. But as time passed, and the vasomotor system became increasingly fatigued, there occurred a slow but persistent fall in blood pressure levels, particularly in the pulse pressure, which reacted only sluggishly and temporarily to additional blood transfusions. This indicates a dangerous condition.

have the same powerful action in re-elevating the blood pressure as they had earlier in the operation, because of the exhausted state of the vasomotor mechanism (Figure 3). When this situation develops, it should serve as a warning that the patient is reaching the limit of his endurance. The best thing to do under such circumstances is to terminate this phase of the operation as soon as possible and complete it at a second session. The surgeon, however, may be so engrossed in the technical demands of his operation that these changes and their significance may escape him, unless they be forced upon his attention by the alert anesthetist.

Mechanical Factors

There are certain mechanical factors—dependent principally upon the unusual positions in which patients may be placed for brain operations—which have a direct bearing upon the conduct and the outcome of the operation.

Patients are commonly placed in one of three standard positions: *First*, on the back, face up, or face turned slightly to one side. (Figure 4) This is the position employed in performing "bone flap" operations—used to expose the cerebral hemispheres. This position presents no particular problem and needs no further discussion.

The *second position* is that in which the patient lies on his stomach, face down. This is used to expose the back part and base of the brain, including the cerebellum and the medulla oblongata (Figure 5). This position carries with it certain peculiar

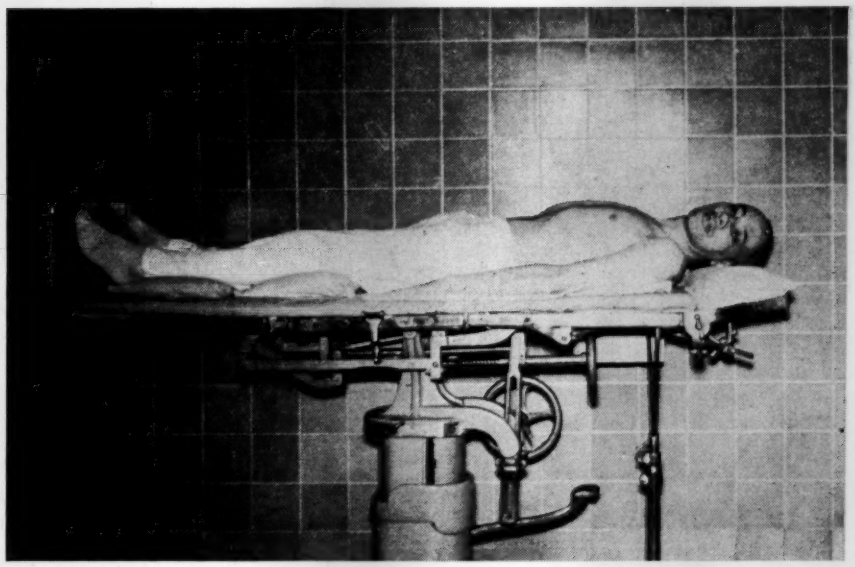


FIG. 4.

The position of the patient for "bone flap" operations used to expose the cerebral hemispheres. This position offers no particular problems to the anesthetist.

problems having to do with the maintenance of a free airway. The surgeon, for instance, will usually want the head to be flexed as far forward as possible, with the chin hard against the chest, for in this position he will obtain the easiest and widest exposure of the operative field at the base of the skull (Figure 6-B). The anesthetist, on the other hand, will find that this position tends to close the epiglottis and to interfere mechanically with the free exchange of air. She will wish to have the head dorsi-flexed in a position of partial extension in order to free the glottis, and insure better mechanical exchange of air (Figure 6-A).

As a matter of practice, neither the surgeon nor the anesthetist can have their own way entirely, and a compromise must be worked out between the two. The wise surgeon will usually follow the wishes of his anesthetist in this matter, since he knows that the partial asphyxia which occurs with a poor exchange of air, causes an immediate and marked venous congestion of the brain, with increased bleeding; and also causes the brain to swell up and tend to push out through the opening in the skull, which, in turn, may cause serious rupture of either brain tissue or blood vessels. The anesthetist, for her part, should understand and be sympathetic with the difficulties of the surgeon in getting a good exposure of the operative field, and should yield as much to his wishes as she can do safely. The one absolute demand of the situation, however, is that a completely free exchange of air be established and maintained, a point which is a "first principle" in brain surgery and cannot be stressed

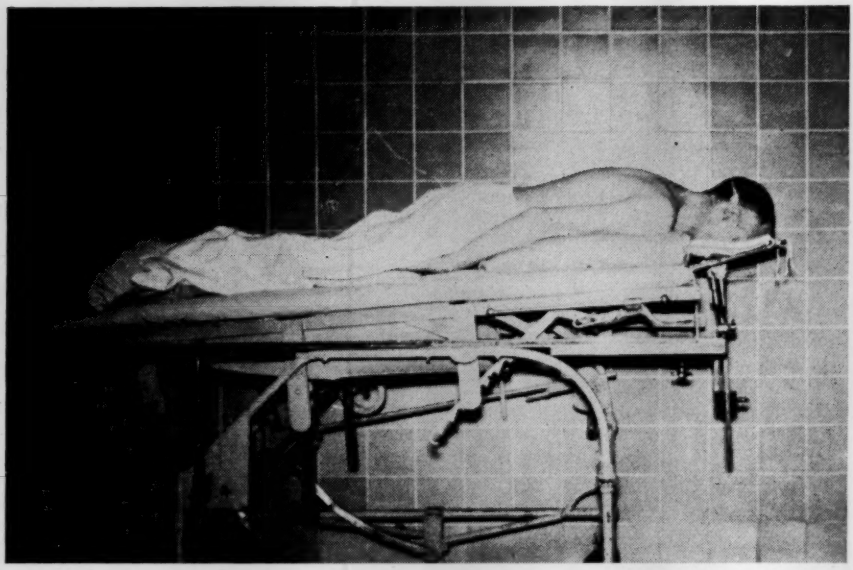
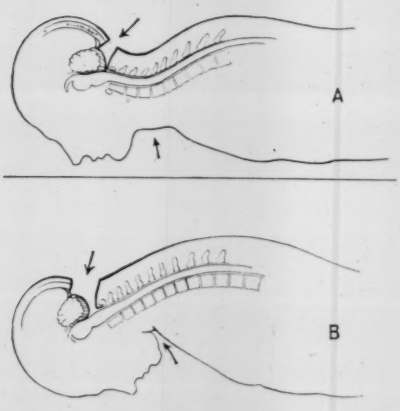


FIG. 5.

The face-down position, used for exposing the cerebellum and the medulla oblongata, at the back and base of the brain, presents many problems to the anesthetist.



too greatly. It has been found that, by and large, the best guarantee of such a free airway is to have the patient conscious; and this is another one of the many reasons why brain operations are performed so often under local anesthesia.

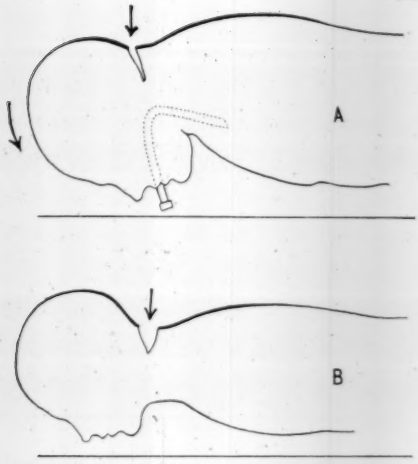
Occasionally, however, there will be a patient who will not cöoperate and who will need a general anesthetic, such as ether. If he be an adult, we are apt to pass an intratracheal tube after he is asleep, following which the head may be sharply flexed to al-

FIG. 6

In the face-down, or cerebellar position, the anesthetist would like to have the head dorsi-flexed (A) since this frees the trachea and the epiglottis, and assures a free exchange of gas, which is essential. The surgeon, on the other hand, would like the head anti-flexed as far as possible (B) since this aids him in getting a good exposure of the cerebellum (see arrows).

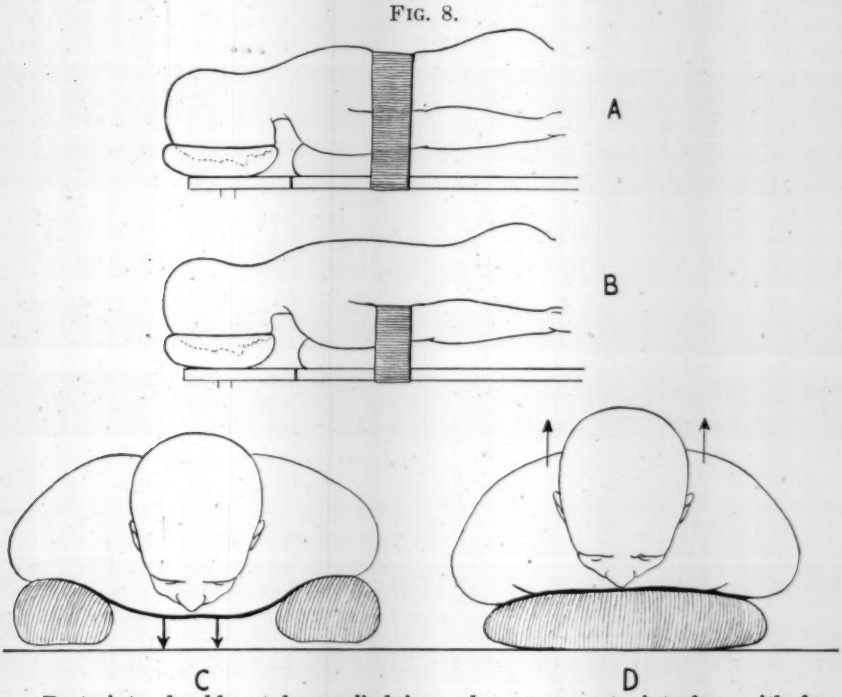
A compromise must be worked out.

FIG. 7



Ether must sometimes be given to uncoöperative patients, who have to be operated upon in the face-down position. If they be adults, especially with short thick necks (A) it is difficult to anti-flex the head far enough to obtain an adequate exposure of the cerebellum without closing off the airway. In such patients an intratracheal tube is very valuable. In children, however, this is rarely necessary, since the head is relatively large, and the muscles of the neck and back comparatively small (B) so that exposure of the operative field as a rule is quite easy.

FIG. 8.



Restraints should not be applied in such a way as to interfere with free respiratory movements (A). They are best applied to the extremities, leaving the thorax entirely free (B).

The patient's shoulders should rest upon two sandbags or other similar supports, annd the thorax suspended between them (A). In this way the chest can expand freely, without effort. If the patient be placed with his chest flat on the table or other firm support, he must lift his body upward with each inspiration. This adds tremendously to the respiratory effort.

low the surgeon maximum exposure at the back of the head and neck without any danger of interfering with the free exchange of gas (Figure 7-A). In children, the intratracheal catheter is rarely necessary, however, for the reason that the head is usually relatively large and the muscles of the back relatively small, so that exposure of the desired region can be made, as a rule, without the necessity of bending the head forward (Figure 7-B).

Other mechanical factors arising in connection with this face down position, which affect in a major way the respiratory exchange during an operation and thus the welfare of the patient, have to do with the methods of his *support* and *restraint* on the table. The patient's shoulders should rest upon two sand bags or similar supports; and the thoracic cage be suspended between them in such a way that the respiratory movements are entirely free (Figure 8-C). He should not be placed flat upon the table, even with a pillow under him (Figure 8-D). In this position, each time he expands his chest, he must lift the weight of his body off the table. Over the course of a long operation this adds greatly to the burden imposed on the respiratory mechanism, and may be a potent factor contributing to respiratory exhaustion and failure. Moreover, restraints should not be applied over the back of the thorax, for this will greatly hamper the respiratory effort (Figure 8-A). Rather, they should be applied solely to the extremities (Figure 8-B). Details such as these may have a great effect upon the outcome of a close operation.

The *third* or sitting position is used in operations for trigeminal neuralgia and for certain brain tumors (Figure 9). The advantage of this position is that bleeding from the scalp, skull and brain is less with the head thus elevated than when the head is down low. There is, however, one drawback to it; namely, that it places a greater burden upon the heart and vasomotor system, than does the horizontal position. When the patient is lying flat, the heart has only to pump the blood with sufficient force to maintain the blood pressure levels normal for that individual; whereas, when the patient is sitting upright, the heart must exert, in addition to that, enough force to overcome the action of gravity operating throughout the distance between the top of the head and the tip of the toes (Figure 10). This adds a very considerable burden to the heart, and to the vasomotor system, with the result that fatigue and exhaustion of these two systems are more apt to occur with the patient in this position, than when he is lying down. Should exhaustion of

FIG. 9.

The upright or sitting position is used in certain cases. The advantage of this position is that there is less bleeding from the scalp, bone and brain, than when the head is low.

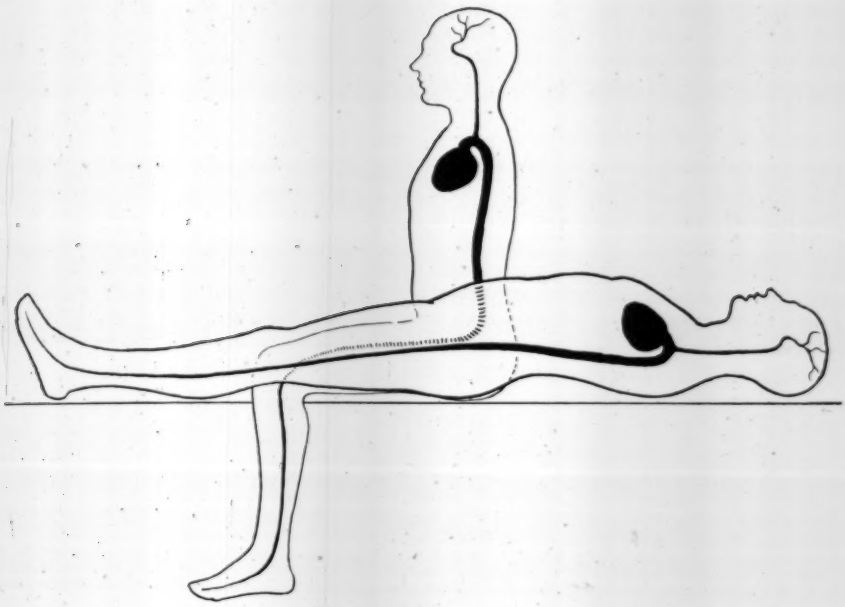


FIG. 10.

The disadvantage of the upright position is here indicated. With the patient in this position the heart must overcome the force of gravity in addition to maintaining the normal blood pressure levels. Cardiovascular fatigue is, therefore, more apt to occur in the upright than in the horizontal position. For this reason, it should not be used with debilitated patients, or those who have been bedridden for some time before operation.

either the heart or the vasomotor system occur, there follows a fall of blood pressure, which closely resembles a true state of shock.

Only carefully selected patients should be operated upon in the upright position. In particular, any patient who has been confined to bed for a length of time prior to operation should not be placed in this position, since the vasomotor system has certainly lost some of its tone, and may not be able to maintain proper blood pressure levels throughout a long operation. In all patients operated upon in the upright position, the anesthetist should be particularly alert for signs of impending vasomotor fatigue and collapse. When such a condition seems imminent, adrenalin and ephedrine should be given and intravenous fluids, preferably blood. If the patient does not respond to this therapy, it may be necessary to terminate the operation as quickly as possible and place him in a horizontal position. Fortunately, this complication is rare, but when it does take place it constitutes a real emergency.

Specific Neurologic Factors

In addition to the above factors, there are certain other factors present only in surgery of the brain, which are entirely inherent in the structure and function of the brain.

Any general increase of intracranial pressure, of course, forces blood out of the brain and thereby causes rel-

ative anoxemia; and this is shown by drowsiness, stupor and coma. When this anoxemia affects the medulla oblongata, where the respiratory center is located, the respirations are suppressed; and if the anoxemia be severe enough and lasts long enough, the respiratory center will cease functioning completely and permanently. This—and not cardiac failure—is the usual mechanism of death with increased intracranial pressure due to whatever cause. This process is greatly accelerated if the medulla is compressed directly by a tumor or, during operation, by a retractor. *Respiratory failure constitutes an omnipresent threat to life in all cases of increased intracranial pressure.* Any change in the character or the rate of the respirations is, therefore, more immediately important than changes in the pulse rate or the blood pressure; and should be reported to the surgeon at once.

In addition to the effects of *general* intracranial pressure upon the brain, there are certain other physiologic and neurologic reactions arising from *local* pressure on particular parts of the brain; these should be known to the anesthetist, as well as their significance (Figure 11).

The frontal lobe is the seat of the higher intellectual faculties. Any disturbance here results in altered consciousness, leading through drowsiness to coma.

The central portion of the cerebrum contains the primary centers for motion and sensation of the arms, legs, face and body (of the opposite side). Injury here may cause convulsions or paralysis.

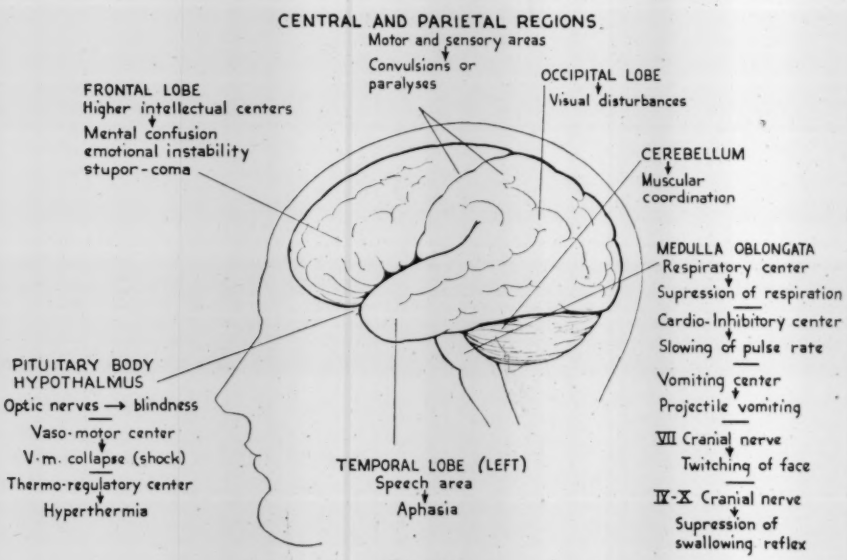


FIG. 11.

The various important regions of the brain, and the functions residing in them are here shown. Of particular interest to the anesthetist is the hypothalamic region where vasomotor and heat regulating centers appear to be located; and the medulla oblongata, where the respiratory center is situated.

The arrows in the figure should be translated to read "disturbance here causes"

The temporal lobe (on the left side in right-handed individuals) harbors the faculties of speech. Injuries here may interfere greatly with speech or, indeed, prevent it entirely.

The hypothalamic region, which lies beneath and behind the frontal lobe close to the pituitary gland, controls in some manner two very important vital functions; namely, (a) the vasomotor activity, responsible for the maintenance of normal blood pressure, and (b) the heat regulating mechanism, which controls the body temperature. In operations performed in this region of the brain, either or both of these centers may be disturbed. When the vasomotor center is affected, there is a primary collapse of vasomotor tone with fall of blood pressure and *shock*. Practically the only cases of brain operation where this occurs are those performed in this region.

Disturbance of the heat regulating center will produce so-called *malignant hyperthermia*, in which condition the patient's temperature may rise from normal to 105 or 106, within a half hour to an hour; and even mount to 107 and 108, causing rapid death. The tendency to hyperthermia almost always appears before the completion of the operation, so that whenever surgical procedures are being carried out in this region, the anesthetist should observe the temperature of the skin frequently and, if it feels abnormally warm, she should obtain a rectal temperature while the operation is still under way. Large doses of powdered aspirin by rectum and continuous tepid sponging will frequently abort the hyperthermia if these measures are instituted early enough; whereas they are of little avail when instituted late.

Operations for tumors in the cerebellar fossa at the base of the brain bring the surgeon close to the medulla oblongata, where it is easy for him to disturb important and vital centers. Chief among these is the respiratory center, situated in the medulla. Too forceful retraction or the weight of a small pack over a bleeding area may suffice to interfere greatly with the action of this center and may even cause it to stop functioning altogether. For this reason any change in character, or any suppression in the rhythm of the respirations, should be reported at once to the surgeon, since they indicate that he is in a dangerous situation. A hasty or unguarded move at this point might cause a permanent cessation of respiration, and the patient's death.

The medulla oblongata contains other centers influencing the pulse rate and the vomiting reflex. Disturbances of these centers may cause slowing of the heart on the one hand, or vomiting on the other. Although these may be very annoying to the surgeon, they do not carry the same vital import as do changes in the respiratory rhythm. They are mentioned here briefly, merely that the anesthetist may appreciate the mechanisms which produce these symptoms, and evaluate them correctly.

Emotional Factor

Finally, there is another factor which is of great importance in neurosurgical patients; namely, the patient's emotional status during a long, harrowing operation, performed under local anesthesia.

Pain will work directly upon the patient's physical status and cause a harmful change. I have frequently observed sharp, abrupt, and often permanent falls in blood pressure following immediately after a patient has been hurt during an operation under local anesthesia, when there was no other explanation for these changes. The patient must be

watched carefully for evidence of actual pain. Many times this is due to the effect of the novocaine wearing off. A word to the surgeon and the injection of a few cc. of fresh novocaine will put an end to this pain.

Anxiety will send the blood pressure and the pulse rate skyrocketing, and will keep it there as long as the patient is fearful and restless. Over a period of time this increase of pressure and pulse rate will add greatly to the burden on the heart and the vasomotor system, and will contribute mightily to fatigue.

If the anesthetist can win the patient's confidence by her sympathy, understanding and helpfulness, she can do much to allay these emotional factors, and thereby contribute in no small measure to the successful completion of these long and tedious operations under local anesthesia. Her effort in this direction is often the factor which swings the scale in the direction of success.

POSTOPERATIVE PULMONARY COMPLICATIONS

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Anesthetist
and
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Read at the joint meeting of the anesthetists of Illinois, Indiana, Michigan and Wisconsin, held in Chicago, May 7-8, 1941.

The chest complications which sometimes follow surgical procedures are of great concern to surgeons and anesthetists. The surgeon fears them because they may spell the difference between success or failure in certain cases. For example, Gray stated[1] "Pulmonary complications constitute the greatest single hazard in abdominal surgery, and if death cannot be ascribed to them, not infrequently they reduce the actual defensive forces so that a fatal outcome ensues when recovery might otherwise have followed." The anesthetist fears such complications, because, although the terms "ether pneumonia" and "postanesthetic chest complications" are no longer tenable, the surgeon expects the Anesthesia Department to share the responsibility and in some instances to assist in the care during the postoperative period.

The rôle of the anesthetic in the development of chest complications is not well established. Cutler minimized it when he said[2] "There must be something beyond the simple irritation of the anesthetic and the humidity of chilling to bring about so much definite pulmonary disease. Postoperative pulmonary complications were thought to be due to the aspiration of and irritation which accompanied inhalation anesthetics previous to the introduction of infiltration anesthesia. Similar complications, however, followed the use of local anesthetics and all types of postoperative complications occur in about the same percentage in local and inhalation anesthesia."

At the Henry Ford Hospital, there has been a special study during the past three years of postoperative chest

complications by the Surgical and Anesthesia Departments. Each anesthetist keeps a record of the anesthetics she administers, and makes several follow-up visits to each patient. If a complication develops, the essential facts are recorded for later reference. The data include: facts about the operation, postoperative day, provisional diagnosis of complication, x-ray reports, cardiorespiratory consultations, and the results of treatment. Once a month, the doctor in charge of anesthesia conducts a meeting attended by the anesthetists and floor residents to review the previous month's work. Each case which has been provisionally diagnosed as having a pulmonary complication is discussed and all evidence is presented. In a typical meeting, it would be decided that six or eight cases had had a complication worth recording. Some of the data asembled for the years 1939 and 1940, will be presented at this time.

During this period, 11,597 anesthetics were administered, and the following complications were encountered:

Complication	*No. of Cases*	*Fatalities*
Bronchopneumonia or lobar pneumonia	51	8
Atelectasis	32	.
Bronchitis	7	.
Pleurisy	2	.
Lung abscess	1	1
Totals	93	9

We have found that there is a definite seasonal incidence in chest complications. For example, in 1939 (see Figure 1), there was an epidemic of upper respiratory disease in the community in February. In spite of the fact that the total number of operations was curtailed, a peak in the postoperative complications occurred in that month. During such an epidemic period, it may be advisable to postpone elective operations, and for those operations which are done, the anesthetic which has the least tendency to be associated with pulmonary complications should be

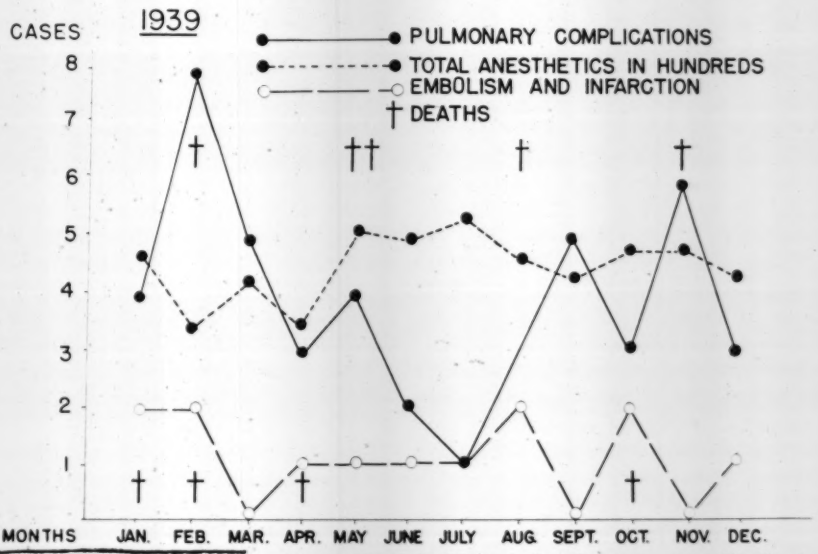

Figure 1. Chart showing the seasonal incidence of pulmonary complications during the year 1939.

chosen if possible, and extra vigilance during the postoperative period is indicated.

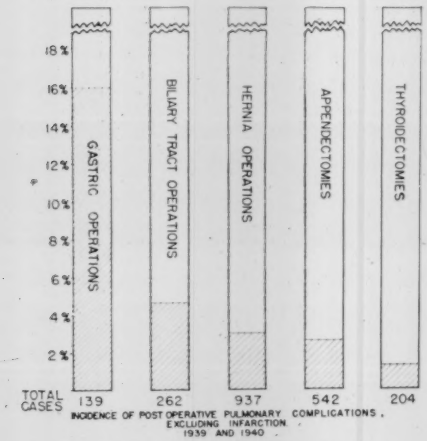

Figure 2. Incidence of pulmonary complications in various types of operations.

Figure 2 shows the relationship of pulmonary complications to the different types of operations. The incidence of complications in gastric surgery was 16 per cent. Next in order are biliary tract surgery, hernia, appendectomy, and thyroidectomy. The high incidence in upper abdominal surgery is usually thought to be due to inhibition of the motion of the diaphragm. At this point, it might be well to review briefly the mechanics of respiration. This has been summarized by Guis as follows:[3]

"The normal lung is expanded by hydraulic traction on the visceral pleura by the outward moving thoracic walls. Thus, the lungs play only a passive rôle in respiration and are subject to changes in the chest wall and diaphragm. During inspiration, the thoracic cavity is increased in all diameters. The portions of the lung which are expanded directly are those in contact with freely movable boundaries of the thorax, namely, the sternum, ribs and diaphragm. With descent of the diaphragm, there is a decrease in the intrapleural pressure which is considerably greater in the supradiaphragmatic region than in other areas. It is estimated that the action of the diaphragm is responsible for about 60 per cent of the ventilation of the lung normally. During respiration, the diaphragm moves up and down like a piston and changes its shape only slightly. The costosternal part moves downward and forward and pushes the abdominal viscera before it. The abdominal wall distends but when resistance is offered by the abdominal muscles, the downward movement of the viscera is hindered. At this point, the force of the diaphragm is split in raising the lower ribs to which it is attached. It is obvious, therefore, that conditions which alter intra-abdominal pressure, such as distention, peritoneal irritation, abdominal wound pain and associated spasm, will influence the diaphragmatic excursion and ventilation of the lung."

It appears, then, that the high, immobile diaphragm is probably the cause of the many cases of atelectasis and other chest complications which accompany upper abdominal surgery. To combat this tendency toward diaphragmatic inhibition, the surgeon chooses incisions which split the abdominal muscles longitudinally, rather than cutting them transversely. Quick recovery from the anesthetic and the encouragement of deep breathing by the use of carbon dioxide is valuable prophylactically. Postoperative sedation should be of such a nature that it relieves apprehension and the pain of abdominal breathing, and does not depress respirations.

Figure 3 shows the relationship of anesthetic agents to the incidence of pulmonary complications. The patients in 0.08 per cent of 6535 inhalation anesthesias had complications, 0.04 per cent in 3723 local anesthesias, and 4.0 per

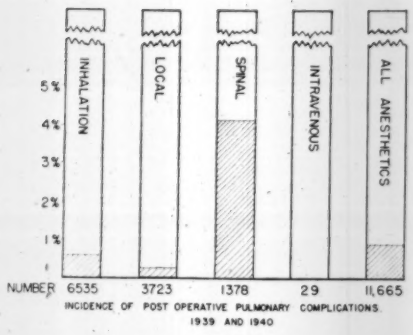

Figure 3. Relationship of the anesthetic agent to pulmonary complications.

cent of 1378 spinal anesthesias were followed by a complication. The fact that spinal anesthesia shows the highest incidence does not mean that that agent is responsible. It is more likely that the types of operations (for example, gastric surgery) and the types of patients for whom spinal anesthesia was selected, should be considered more as the determining factors. Nevertheless, the very low incidence of complications in local and intravenous anesthesia must be significant.

We believe that nursing care is an important factor in the prevention of pulmonary complications. Frequent changes of position, postural drainage and guarding against the inhalation of vomitus, and deep breathing exercises, are valuable.

SUMMARY AND CONCLUSIONS

Data on a two-year follow-up of pulmonary complications at the Henry Ford Hospital have been presented. The winter months showed an increased incidence. Local anesthesia was associated with very few complications. Special precautions are necessary in gastric and biliary surgery.

References:

Gray, H. K.: Minnesota Med., 18:273, 1935.

Cutler, E. C.: Surg. Gynec. Obst., 68:340, 1939.

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REBREATHING IN ANESTHESIA

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In inhalation anesthesia, irrespective of the technique employed, there is rebreathing of exhaled gases. Placing the simplest and smallest mask over the face of a patient immediately institutes some rebreathing. It is even present in the open drop techniques of anesthesia. This rebreathing is increased by the layers of gauze, and the wrapping of towels around the mask. Such arrangements are frequently termed semi-open techniques. Those devices in which the inhaled gases are completely enclosed, but which allow exhalations to pass out of the system through a valve are called semi-closed techniques (Figure 1). Some degree of rebreathing occurs in these, particularly if the valve is not efficient. In the completely closed systems, where there is no communication whatever to the outside air, rebreathing is complete. Three things may occur if rebreathing is not carefully controlled: (1) Carbon dioxide may not be adequately eliminated and accumulates in amounts which may cause physiological disturbances. (2) Sufficient oxygen may not be available in the

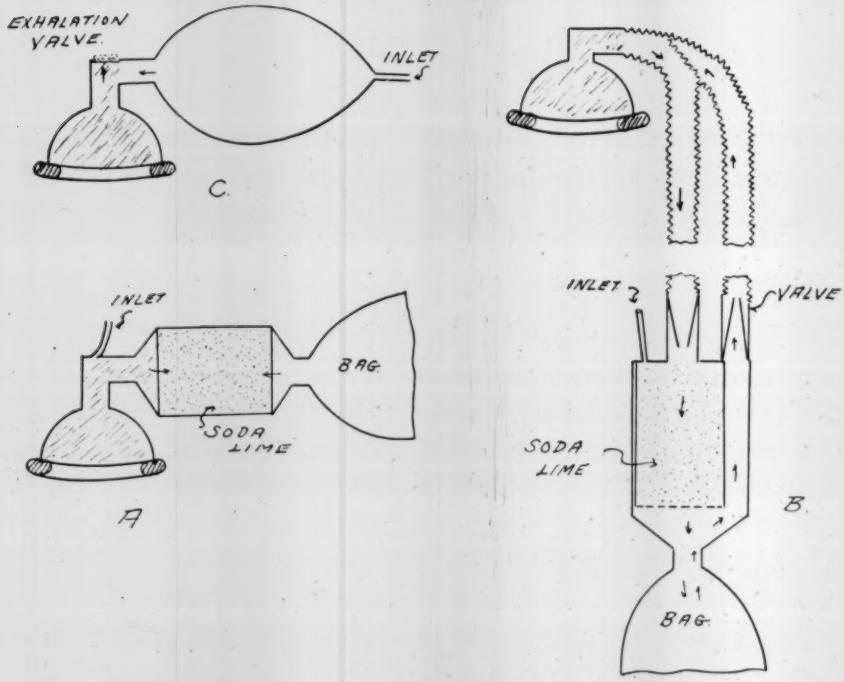

Figure I. A diagrammatic representation of the "to and fro" (A) and "circle" (B) types of closed rebreathing appliances and of the semi-closed system. (C) The "to and fro" consists of a mask, canister, and rubber rebreathing bag. Gases are supplied into an inlet attached to the mask. The "circle" filter consists of a canister equipped with two valves connected to a mask by tubing. The gases pass over the lime in an undirectional flow. All apertures are large, approximately 2:5 centimeters in diameter, to minimize resistance. The connecting pieces are as short as possible from the mask to the inlet tube of the "circle" and to the inlet of the canister of the "to and fro" to minimize the "dead space." The valves are ordinarily constructed of light soft rubber. In these units where the valves are constructed in disc form, the construction is of light metal. The semi-closed system consists of a rebreathing bag with a delivery tube, and a mask equipped with an adjustable disc valve. The amount of rebreathing is controlled by efficiency and the adjustments made on the valve. The resistance to expiration may be high in this type of unit. The shaded area represents the "dead space" in these appliances.

system for the subject, and (3) Excessive resistance to inspiration or expiration or both may be present.

Carbon dioxide may be adequately removed by chemical methods. Soda lime, which is the best absorbent for this purpose, is placed in a suitable canister, which comprises part of the rebreathing unit. Two general types of completely closed systems are in current use (Figure 1): (1) The "circle filter," in which tubes conduct exhalations over the soda lime in one direction and then back to the patient. Valves interposed at the outlet and inlet of the canister permit an undirectional flow of gases only, and (2) The "to and fro," where exhalations

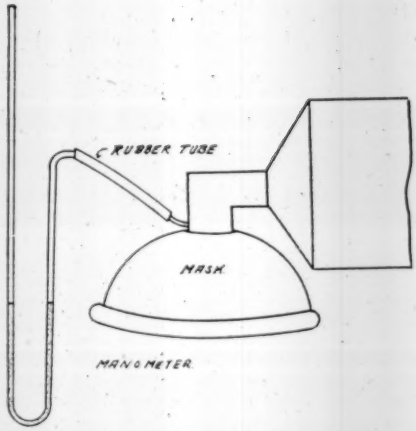

Figure II. A water manometer may be connected to the mask to measure resistance to these units. A negative or positive pressure develops in the mask with inspiration and expiration respectively. The greater the ease with which the gases pass in and out of the system the less the magnitude of this pressure.

pass from the mask directly through the soda lime into a bag and back through the canister on inspiration. The details of this chemical absorption have been described elsewhere.*

Proper oxygen tension must be and is easily maintained by supplying this gas from a storage tank. Valves and meters for measuring the flow allow accurate and proper maintenance of the volume of gases in the system. The oxygen requirement of the patient varies with his metabolic rate but averages 250 cc. per minute under ordinary circumstances during anesthesia.

When a subject breathes from a partly closed or a closed system a slight negative pressure develops within the mask upon inspiration. A return of this to zero followed by slight positive pressure occurs upon expiration. During the expiratory pause the pressure again returns to zero. The magnitude of these fluctuations of pressure depends upon the ease with which the gases pass through the unit. If a system resists the passage of gases the pressure values will be large in either negative or positive phases, depending upon type and location of the impedance. A manometer connected by tubing to the mask allows one to measure these pressures and to study the degree of resistance in various appliances (Figure 2). In well balanced and constructed systems pressures are small and can only be measured by a water manometer. In some the pressure is so little that the column of water is shifted only one or two millimeters of water in either direction.

In the construction of these units the factors that influence resistance most are the size of apertures of masks and canisters, the diameter of the intratracheal tubes, the size and shape of canisters, the length and diameter of tubing, and the presence or absence and type of valves. The smaller the openings in canisters, connecting pieces, and other parts, the greater the resistance. Diameters of apertures in any part of the system should never be less than those of the trachea. Excessive tubing length increases the surface over which gases must pass and increases friction, which is in reality an increase of resistance, from canister to mask. The length of tubes should not exceed three feet, otherwise resistance becomes excessive. Valves may be an important source of resistance also. They should be of the lightest material available and should open and close with a minimum of effort. Frequently in the "circle filter" the valves, since they are usually made of soft rubber, are efficient when new, but become stiff when old and thereby increase resistance. Stiff valves in the closed system offer resistance to one or both phases of respiration. In the semi-closed system a stiff valve offers resis-

* See May, 1941, issue of the Bulletin.

tance to expiration only, and may increase rebreathing and possibly cause excess carbon dioxide to accumulate in the system. Although many types of appliances are manufactured today and resistance varies with the type and age of these appliances, the recent models of machines which are acceptable have such a low resistance that this factor is almost negligible. Resistance to respiration is less in the "to and fro" system than in the "circle." Usually in the "to and fro" it averages 2 to 2.5 millimeters of water, while in the "circle" it ranges from 5 to 10 compared under identical conditions, using a tidal volume of 500 cc. of air, a respiratory rate of 20, 8x13 centimeter cylindrical canisters and 2.5 centimeter apertures throughout. Approximately two-thirds of the resistance in the ordinary "circle filter" is attributable to tubes and valves (Figure 3). The canister with its charge of soda lime contributes less than one third. Resistance also varies with the size of the soda lime granules (Figure 4). Unblended four mesh soda lime, which is a large size granule, offers a minimum of resistance in these filters, but efficiency of absorption is low. When fine mesh lime is used resistance is markedly increased. It is essential that the proper size lime be used in these units to minimize this factor.

Resistance likewise varies with tidal volume. The greater the tidal volume the more the resistance (Figure 5).

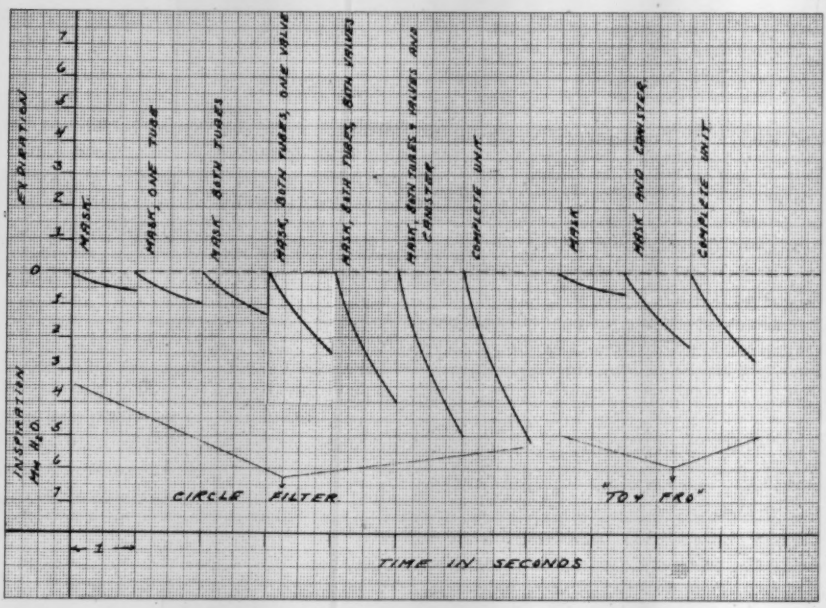

Figure III. Resistance, measured in millimeters of water, in the "circle" and "to and fro" systems is shown. In each case a tidal volume of 500 cc., a respiratory rate of 20 per minute, and an 8 x 13 centimeter canister with 2.5 centimeter apertures were used. In the "circle" filter one-half to two-thirds of this is introduced by the valves and tubing. The resistance will vary with the type of valves, diameter and length of tubing. Different commercial models will vary in the construction and therefore in the amount of resistance.

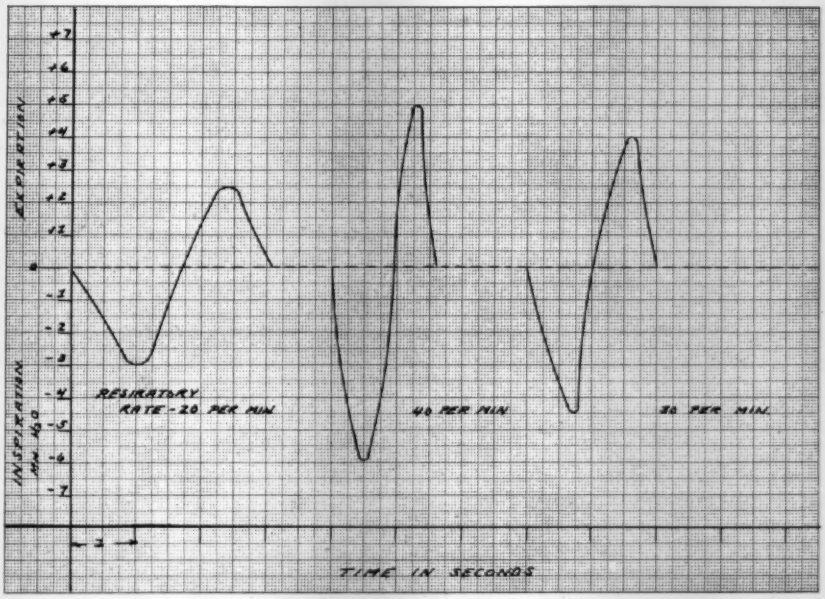

Figure IV. The effect of increasing the respiratory rate upon resistance is shown in millimeters of water. The studies were done on a "to and fro" system using a tidal volume of 500 cc. and on an 8 x 13 centimeter cylindrical canister charged with 4 x 8 mesh soda lime. The resistance in the "circle filter" under comparable conditions is considerably higher than in the "to and fro."

When all other factors are constant and the tidal volume is increased from 500 to 1000 cc. resistance usually doubles, due to the increase in the linear velocity of the air through the system. Increasing the respiratory rate has the effect of increasing the linear velocity also (Figure 6). Resistance to respiration is therefore increased when a patient breathes rapidly and of course more so when he breathes both deeply and rapidly. The shape of the canister may influence resistance also. Oblong, cylindrical, and oval shaped canisters induce the least, while conical shaped or narrow cylindrical shaped canisters induce the greatest. Resistance to respiration is harmful, particularly that to the inspiratory phase, which is believed to favor the onset of pulmonary edema.

The size of the "dead space" is an important feature in rebreathing and deserves much consideration. The volume of the air which does not come into contact with the soda lime which may be reinhaled without being freed of carbon dioxide comprises "dead space" air. This space is the "mechanical dead space" and should not be confused with the "physiological dead space," which equals the volume of air in the pharynx and trachea. In the "circle filter" this would include the air in the mask up to the outlet tube. In the "to and fro" it would include that air in the mask up to the wire gauze in the canister. The larger the mask, the greater this space and the greater the volume of air which is rebreathed without having carbon dioxide removed. Additional tubing between the canister and the mask would

increase it. In intratracheal anesthesia, both the "mechanical dead space" and the "physiological dead space" are reduced since the tube dispenses with the air in the naso-oropharynx as well as that in the mask. Physiologists have mentioned that the "dead space" in the upper respiratory tract prevents rapid and abrupt changes in alveolar carbon dioxide and oxygen tensions. Whether or not reducing the "dead space" is of clinical significance has not been determined, but no apparent deleterious effects are noted in intratracheal anesthesia. Increasing the "dead space" mechanically with large masks, excess tubing, et cetera, increases to a varying extent the alveolar carbon dioxide tension. In adults who are susceptible to slight carbon dioxide changes, this may cause hyperpnea and increased blood pressure, two cardinal signs of carbon dioxide excess. In children the mask may increase the total dead space considerably since the pharynx and trachea are small and the space in the mask and connecting pieces can not be reduced in proportion. Further, children may be more susceptible to carbon dioxide increases, which frequently result in marked disturbances of respiration. It is sometimes impossible to eliminate this physiological disturbance and the closed system is frequently abandoned for the open methods of anesthesia in children. The ideal anesthesia from the standpoint of minimum "dead space" is obtained during insufflation techniques of anesthetic drugs with oxygen.

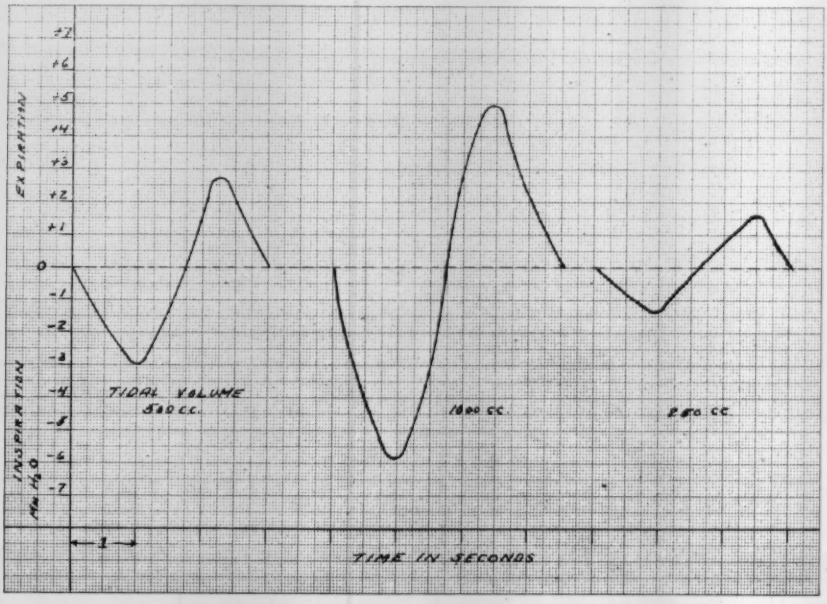

Figure V. The effect of respiratory tidal volume on resistance is represented in millimeters of water. These studies were done when the respiratory rate was 20 per minute, in a cylindrical 8 x 13 centimeter canister with a 4 x 8 mesh soda lime on a "to and fro" system. Resistance increases with increases in tidal volume. Under comparable conditions resistance would be considerably higher in a "circle filter."

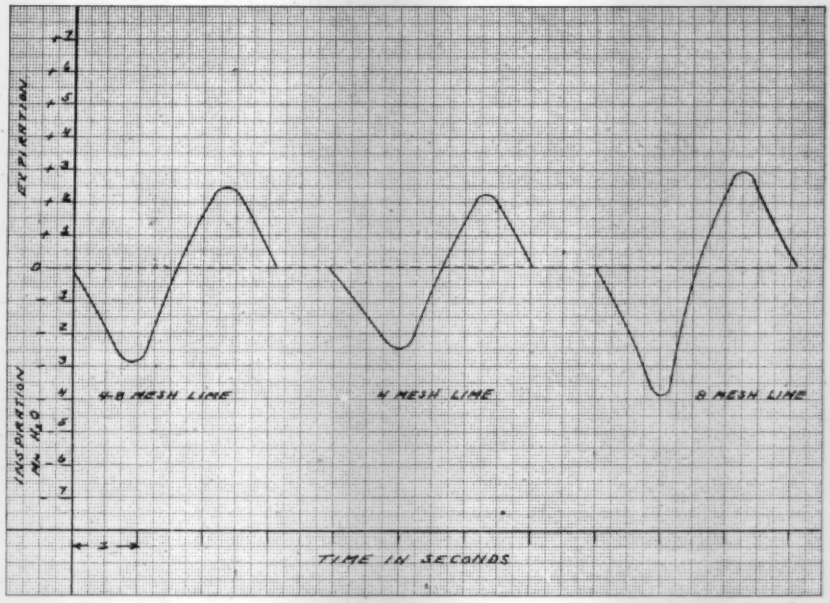

Figure VI. The effect upon resistance of varying the size of the soda lime granules is shown. The smaller sized soda limes offer more resistance than the large. These studies were made with an 8 x 13 centimeter cylindrical canister on a "to and fro" system, using a tidal volume of 500 cc. and a respiratory rate of 20 per minute.

In using the "to and fro" canister, it has been mentioned elsewhere* that when the tidal volume of the patient is less than the air space in the canister, the soda lime in the front half of the canister is the first to become exhausted. When this is completely exhausted the soda lime in the back portion functions and the intergranular air space in the front of the canister then acts as a "dead space." This condition is most frequently seen during anesthesia in children when large canisters (8x13 centimeters) are used. The tidal volume in children is less than that of adults. To obtain the most efficient absorption and avoid the increasing "dead space" with progressive exhaustion of the front portions of soda lime, small canisters should be used (6x8 centimeters, or 7x12 for young adults). In the "circle filter" one is not faced with this problem since the pattern of absorption is different and small tidal volumes do not form "dead space."

The possibility of cross infection with anesthesia apparatus from an infected patient to another is not remote. This danger is almost completely eliminated if tubing, masks, and connecting pieces are cleaned between cases. This should offer no problem since they are readily detached and cleaned. The canister and its contents are not so easily cleaned and cannot be autoclaved because of the possibility of decreasing the absorptive power of the soda lime. However, experimentally and clinically

* See May, 1941, issue of the Bulletin.

it has been found that there is no transmission of bacteria from the canisters heavily infected with colon, tuberculous, and other bacilli. The highly caustic nature of the soda lime and the heating during absorption possibly have a germicidal effect. One can, therefore, use a canister on successive cases without fear of transmitting infection should an unsuspected infection be present in a subject. One can never be over-cautious, and in the face of known infections the canister should be replaced or cleaned properly before it is used once more.

SUMMARY

Rebreathing is a feature of all inhalation anesthesia. It may be partial, as in the open and semi-open systems, or complete, as in the entirely closed systems. Accumulations of excess carbon dioxide are avoided by providing adequate avenues of escape in the open, semi-open, semi-closed or by absorption by chemical means in the totally closed systems. Adequate oxygen tension is maintained by supplying a flow of this gas of 250 cc. or more per minute. Resistance is minimized by providing wide apertures in the pathway of inspired and expired gases, proper sized and shaped canisters, proper grade of soda lime, new and soft valves, and short connecting tubing. Large masks and unnecessary connecting tubes increase the "dead space" and may result in increases of alveolar carbon dioxide tension with subsequent circulatory and respiratory disturbances.

The danger of cross infection is negligible if all movable parts are carefully cleaned with soap, water and alcohol, since bacteria are not transmitted from the canister containing soda lime.

HEADQUARTERS

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Miss Anna Willenborg, Executive Secretary

DEPARTMENT OF EDUCATION

REPORT OF COMMITTEE ON GASES

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National Bureau of Standards.

Practically all of the committee's activity during the past year has been in connection with the preparation of safety standards governing the Use of Combustible Anesthetics in Hospital Operating Rooms. More than ten years ago, the National Board of Fire Underwriters, perceiving the need of safeguards in this field invited the coöperation of the hospital authorities of the United States, the Surgeons General of the Army, Navy, Public Health Service and other interested parties in studying the problem and preparing the necessary safeguards. This was accomplished and since that time the National Board has continued to assist the hospitals of the country in meeting and solving the many problems of safety brought about by the rapid progress and developments in the field of anesthesia. The extensive use of the relatively new anesthetic, cyclopropane, has served to increase interest in the general problem and this, coupled with new thoughts and opinions developed through the use of the National Board's standards over a period of years, has indicated the need not only for a more or less complete revision, but also a re-study from the viewpoint of new technical data and new materials. At the request of the National Board, this project has been taken over by the N.F.P.A.; the Committee on Gases has been given the assignment and in turn the actual work of making the study and preparing the new standards, referred to a special conference committee.

Owing to the highly technical nature of this project it was important that the man chosen to head the conference committee be one who was thoroughly competent through technical ability and experience in dealing with the dangers of combustible anesthetics. It was indeed fortunate that such a man in the person of J. Warren Horton, Associate Professor of Biological Engineering at Massachusetts Institute of Technology, was available and willing to assume this difficult task.

Professor Horton for more than a year has been engaged in carrying on a comprehensive research into the many phases of the problems presented by the use of combustible anesthetics. This has been supplemented by investigations of

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actual occurrences of the kind demonstrating the need of safety standards. This committee is as follows:

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Howard Carter,
Section on Physical Therapy, American Medical Association.

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TENTATIVE
RECOMMENDED SAFE PRACTICE FOR THE USE OF COMBUSTIBLE ANESTHETICS IN HOSPITAL OPERATING ROOMS

Section I
GENERAL INTRODUCTION

The purpose of the following recommended specifications for certain features of the construction and arrangements of operating rooms, delivery rooms, and other places for surgical treatment, and the performance, installation, maintenance and use of equipment therein is to reduce the hazard of electric shock from the electric power and lighting circuits and the hazard of igniting flammable mixtures of gases. Studies of these hazards by many investigators, over many years, lead to the conclusion that the greatest degree of safety possible with our present knowledge can be secured only by a coördinated treatment of all significant factors rather than by the application of individual and unrelated safeguards. In some cases certain of the suggestions here presented are effective, or even permissible, only when carried out in conjunction with other recommendations.

In preparing these safe practice recommendations it has been recognized that the behavior of materials and of mechanical agents can be relied upon with greater assurance than can the behavior of human beings. Consequently it has been the aim to follow a plan which will require the minimum of conscious human effort in its daily application. On the other hand it must be emphasized that the most adequate physical safeguards can not eliminate the necessity for continuous and intelligent vigilance but can only make such vigilance effective.

It must further be pointed out that all details of operating room arrangement or equipment are by no means covered by the specifications here presented, although they do cover the major factors contributing to the hazards of electric shock and of the ignition of flammable gases. There remain other details concerning which it appears unwise at the present time to formulate rigorous recommendations.

These recommendations outline in some detail ways and means for eliminating or correcting conditions which experience and investigation have shown to

contribute to the hazards in question. In applying them it is necessary to understand fully the nature of these contributory conditions and their relations to the hazards. In any given situation intelligent judgment must be used in order to meet the particular conditions there existing most reasonably and effectively.

It is not the intention that these recommendations shall, in any way, supersede the accepted standards of the National Electric Code. All recommendations here presented which have to do with electrical equipment are in strict conformity with the November, 1940, edition of this Code. An attempt has been made to emphasize those standards which are of particular significance in connection with electrical wiring and equipment used in operating rooms and to present them in such form that they may be most useful to those concerned with this specific problem.

Section II
NATURE OF HAZARDS

Combustible Gases

The use of the ether compounds or of the hydrocarbon gases as anesthetics is attended by considerable risk because of the fact that these agents form flammable mixtures with air, oxygen, or nitrous oxide. In many cases these mixtures are violently explosive. Fatal accidents have been of not infrequent occurrence.

The use of closed rebreathing systems for the administration of these anesthetic agents normally tends to restrict the region likely to be hazardous. To secure a reasonable measure of protection, however, it has been found necessary, with minor exceptions, to apply safeguards throughout any room in which these agents may be used. Definitions for hazardous locations are given in Section III.

The actual extent and duration of a hazardous condition resulting from any use of flammable anesthetic agents may, in practice, be reduced by suitable ventilation. Recommended specifications covering certain important details of such ventilation are given in Section IV.

Spontaneous Ignition

A possible method of ignition is by spontaneous oxidation. Under certain conditions, as when oxidizing and reducing gases are permitted to mix under high pressure, explosions due to this cause may be of terrific violence and are a serious hazard. Precautionary measures for reducing this hazard, as well as other precautions to be observed in the storing and handling of anesthetic gases, are suggested in Section V.

Electrical Systems

If a connection between two points of the electrical system which are at different electrical potentials includes the body of a person, he is likely to suffer an electric shock. If a connection between two points of the electrical system which are at different electrical potentials is made by metallic conductors, there is likely to be a spark or an arc or intense heating of one or more of the metallic conductors. In the majority of cases, situations presenting one of these hazards also present the other and safeguards against one are often effective against the other. There are, however, situations for which the safeguards are conflicting; hence, it is necessary to consider both hazards in recommending precautionary measures for either.

The most common hazardous electrical contacts are between the two sides of the low voltage distribution circuits. The potential difference in these cases

is ordinarily 110 volts although it may, in some installations, be as high as 220 volts. A shock resulting from such contact is likely to be of sufficient severity to be extremely hazardous in an operating room. Less common hazardous contacts are between either side of the high voltage distribution circuits and some metallic object in contact with some other portion of the electrical power system. Present methods of installation make such contacts extremely unlikely. When they do occur, however, the potential differences encountered may be of sufficient magnitude to be exceptionally dangerous. Shocks from such contacts are generally fatal.

The conventional protection against both of these situations is to ground one side of the low voltage distribution system and to enclose the conductors within a grounded metallic sheath, or conduit. The current-carrying portions of all electrical equipment are likewise enclosed, as far as possible, within grounded metallic housings. In this way all exposed conducting portions of electrical equipment are maintained at ground potential. Consequently, simultaneous contacts with conducting bodies are likely, in most cases, to involve points at the same electrical potential. Should the ungrounded side of any grounded circuit come into contact with an exposed conductor, the ground connection of the latter would result in a short circuit and thus remove the potential from the line by opening the fuse or other overcurrent device. The possibility of shock is thus further reduced.

A short circuit resulting from contact between the ungrounded side of the electrical system and any grounded conductor, while reducing the shock hazard, introduces the possibility of a spark or arc and hence of the ignition of any flammable gases which may be present. To reduce this hazard without, at the same time, impairing the safeguards against electric shock, the use of an ungrounded branch distribution system, as specified in Section VI, is recommended. In this arrangement the protection against electric shock is as complete as in more conventional arrangements. In order for a short circuit to occur with this arrangement, however, it would be necessary for two defects, involving both sides of the circuit, to exist simultaneously in the electrical wiring or equipment. As a further safeguard a ground contact indicator is recommended which would give immediate warning of the existence of either of these two defects, thus making it possible to correct one before the occurrence of the other.

Other recommendations for the installation and maintenance of electrical equipment in hazardous locations and in places where electric shocks are particularly to be avoided are given in Section VI.

Electrostatic Spark Discharges

Statistics indicate that the ignition of flammable gases by electrostatic spark discharge is a hazard of approximately the same frequency of occurrence as ignition by the electrical system. Electrostatic charges can set up dangerous potential differences only in the presence of materials which are electrically nonconducting, i.e. insulators, which act as barriers to the free movement of such charges and hence prevent the equalization of potential differences. A spark discharge can take place only when there is no other path of greater conductivity available by which this equalization may be effected. A reduction of the hazard, therefore, may be accomplished by the proper selection, use, and maintenance of materials. The specifications recommended in Section VII cover points of major importance in this connection.

Inasmuch as these specifications recommend the effective grounding of persons and objects, there are situations in which they might result in an increased probability of hazardous contact with the electrical system. This possibility can and should be avoided by the thorough grounding of all protective metallic housings or enclosures of electrical circuits and equipment as recommended in Section VI.

It has been suggested that the electrical inter-connection of conductive bodies, such as is brought about by grounding, may increase the amount of energy liberated by any electrostatic spark discharge resulting from the presence of bodies not included by the interconnection. It is the purpose of the specifications recommended in Sections VI and VII to provide grounding, and hence interconnection, which is sufficiently effective to prevent completely the entrance of such bodies into hazardous locations.

Flames and Hot Bodies

A very obvious and, hence, less frequent cause of the ignition of flammable gases is by the open flame or hot body. The most effective safeguard against this source of ignition is a continuous consciousness on the part of the operating room personnel of the danger inherent in the use of flammable anesthetics.

Section III
DEFINITIONS OF HAZARDOUS LOCATIONS

Hazardous Locations

A room in which any of the hydrocarbon anesthetic gases or any of the ether compounds are stored or used is to be considered a *hazardous location*. The hazardous condition may be considered as extending for a horizontal distance of 10 feet and to a height of 7 feet above the floor outside of any door opening into such a room.

An exception may be made in the case of a room ventilated as specified in Section IV; in such rooms the hazardous condition may be considered as extending to a height of 7 feet above the floor.

Locations of Limited Hazard

Any corridor or room through which a patient is moved during the progress of anesthesia, or through which anesthesia equipment is moved while in an operating condition, is to be considered a *location of limited hazard*. In such locations hazards due to permanently installed electrical equipment should be considered as being the same as for non-hazardous locations; hazards due to electrostatic charges should be considered as being the same as for hazardous locations.

Section IV
VENTILATION

Method of Ventilation

All hazardous locations, as defined in Section III, should be ventilated by mechanical means. Air should be brought into the room by ducts opening not less than 6 feet from the floor and removed from the room by ducts opening not more than 3 feet from the floor.

Amount of Ventilation

There should be a change of air of not less than 20 cubic feet per person per minute, but in no case should there be less than 12 changes of air per hour.

Arrangement of Equipment

The preferable location for the circulating fans or blowers is in the inlet ducts.* Regardless of location, fans should be of a type approved for use in explosive atmospheres. Motors should be of a type approved for use in explosive atmospheres and should be installed outside the ducts.

Temperature and Humidity

The temperature and humidity maintained in operating rooms should be chosen on the basis of the well being of patient and personnel. High humidity will reduce the hazard of electrostatic spark discharge under certain conditions but is not sufficiently reliable for their complete elimination.

Windows

Windows in hazardous locations should be kept closed.

Section V

STORAGE AND HANDLING OF GASES

The recommendations presented in this section are, in general, taken from previously published good practice requirements and safety codes. They have been modified, where necessary, to bring the several sources into agreement with each other and with other sections of these recommendations. They include and are in conformity with the recommended good practice requirements adopted by the National Fire Protection Association and by the National Board of Fire Underwriters and with the recommendations of the National Safety Council and of the American Hospital Association.

Specifications for Cylinders

All cylinders containing compressed gases, such as anesthetic gases, oxygen, or other gases used for medicinal purposes, whether these gases be flammable or not, should be in accordance with the regulations of the Interstate Commerce Commission with respect to construction, testing, and fittings.

Marking of Cylinders

All cylinders containing compressed gases should be clearly marked with the gas contained therein.

All cylinders containing compressed gases should, in addition to showing the name of the gas, show conspicuously a color indicating the nature of the gas contained therein. Recommendations and regulations of the Interstate Commerce Commission and of the National Bureau of Standards regarding suitable conventions for such color coding should be followed.

Storage of Containers

All cylinders containing compressed gases, and all cans containing volatile liquids should be stored in dry locations ventilated as recommended in Section IV. Under no circumstances should these cylinders be stored in the operating room. If stored in an adjoining room there should be a blank wall between such room and the operating room. In all cases the storage of compressed gases and of flammable liquids should be in strict accordance with the provisions of State law and of municipal ordinances.

* Vapors in the inlet ducts are less likely to be flammable than those in the outlet ducts. The use of fans in the inlet ducts also maintains a positive pressure in the operating room thus tending to lessen air-borne infection brought in from corridors and other adjoining locations.

Location of Containers

Cylinders containing compressed gases, or cans containing volatile liquids should be kept away from radiators, steam pipes, and like sources of heat. Cylinders containing reducing gases, such as ethylene or cyclopropane, and cans containing flammable liquids, such as ether, should be kept out of proximity to cylinders containing oxidizing gases, such as oxygen or nitrous oxide. Flammable materials, such as wood and fabrics, should not be stored or kept near cylinders containing oxygen.

Coverings

Cylinders containing compressed gases, cans containing volatile liquids, and anesthetic administering equipment not in active use should never be covered with fabric or other covering at any time.

Special Care of Oxygen Cylinders

Great care must be exercised with cylinders containing compressed oxygen to prevent any accumulation of grease or oil on either the cylinder or any of the fittings attached thereto. Such cylinders and fittings should never be wiped or rubbed with any cloth, waste, or similar material likely to contain oil or grease.

Regulators and Valves

Suitable approved regulators or other gas flow control devices should be used in conjunction with any cylinder containing gas used for medicinal purposes.

Cylinder Connections

No equipment should be used for coupling cylinders containing compressed gases which might permit the inter-mixing of gases, either through defects in the mechanism or through error in manipulation, in any portion of the high pressure side of any system in which these gases may flow. It is particularly important that the inter-mixing of oxidizing and reducing gases under pressure be scrupulously avoided as such mixing inevitably results in spontaneous combustion and explosions of terrific violence.

Filling of Cylinders

Compressed gas should never be transferred from one storage cylinder to another on the hospital premises.

Piping Systems for Gases

Systems for the distribution of gases should, except as noted below, employ standard, full weight iron-pipe-size brass pipe with substantial brass fittings, or approved seamless drawn well annealed copper, brass, or other non-ferrous tubing with approved fittings, protected against mechanical injury in a manner satisfactory to the authorities having jurisdiction. In all piping systems proper allowance should be made for expansion and contraction, jarring, and vibration. Brass used for such piping should have a copper content of not less than 83 per cent. Long runs of piping should be avoided and cylinders should be located as close as feasible to points of consumption.

An exception may be made in the case of nitrous oxide, for the distribution of which iron or steel tubing may be used.

An exception should be made in the case of ethylene, for the distribution of which iron or steel tubing should be used.

Where threaded joints or fittings are used, threads should be in accordance with the American Pipe Thread Standard. All joints should be sweated with solder.

Where anesthetic or other gases used for medicinal purposes are piped from building to building, pipes should perferably be placed in a separate tile duct used for no other purpose. If tunnels containing other piping are used for this purpose the anesthetic or other gases should be segregated in a special basket type metal duct for this use exclusively, having screened sides, top and bottom, and conspicuously labeled at frequent intervals "DANGEROUS GASES." Such tunnels should be well lighted and ventilated.

All piping should be tested and proven tight at one and one half times the maximum working pressure, but never at less than 100 pounds per square inch. Before being placed in service such piping should be thoroughly blown out to insure freedom from foreign materials.

Identification of Pipe Lines

All oxygen pipe lines should be painted one color, perferably green, and all anesthetic gas lines a different color. Where more than one anesthetic gas is piped, the lines distributing the different anesthetics should be painted distinctive colors.

A chart identifying the various gases according to colors employed should be prominently displayed.

Manifolding Anesthetic Cylinders to Headers

Headers should be constructed of double extra heavy piping, preferably brass or bronze, not exceeding one and one quarter inch nominal pipe size. Fittings in header, if used, should be extra heavy. Headers should be provided with shut-off valves at each point where a cylinder is to be connected.

Leads from header valves to cylinder valves should be constructed of steel tubing or an approved composition pipe, and should be capable of withstanding a pressure of 1000 pounds per square inch.

The discharge opening from the header should be equipped with an approved regulator.

Manifold systems should be capable of withstanding a test pressure of one and one half times the charging pressure.

A preferred arrangement from the safety standpoint is to so set the manifold regulators that when one side of the manifold is exhausted, the other side will automatically function.

A method which eliminates the need of a header and which has been successfully used in practice, is to connect two cylinders to the piping system and so set the regulator of the second cylinder that when the first is empty, the second cylinder will automatically come into service.

Oxygen Manifolds

Oxygen manifolds or headers should be constructed of bronze of such weight as to insure suitability for the purpose. All sections of the header should be freed of foreign material and combustible matter before assembly.

Fittings for header should be substantial design and may be threaded and soldered to header or threaded using litharge and glycerine only.

The leads or connections attaching cylinders to header should be constructed of annealed brass, bronze or copper, of suitable strength.

High pressure headers, fittings and leads should be capable of withstanding a pressure of 3600 pounds per square inch.

Headers, fittings and leads after assembly should be washed out with carbon tetrachloride or other suitable grease solvent and blown out by low pressure oxygen.

It is recommended that oxygen headers or manifolds be purchased from, and installed by, reliable manufacturers familiar with the proper shop practice with reference to their construction and installation.

Emergency Shut-off Valves

In addition to the shut-off valves within the operating room, a shut-off valve should be provided outside thereof in each flammable gas and oxygen line, so located as to be accessible at all times for use in an emergency. These valves should be so arranged that shutting off the supply of gas to any one operating room will not affect the others. Valves should be of approved type and mounted on a pedestal or otherwise properly safeguarded against mechanical injury.

General Precautions

As defined in Section III, places where compressed flammable gases or flammable liquids are stored are considered as hazardous locations. The recommendations covering electrical wiring in hazardous locations and recommendations for the reduction of the electrostatic hazard should, therefore, be rigorously observed.

Section VI

ELECTRICAL WIRING AND EQUIPMENT

Recommendations for electrical wiring and equipment to be used in operating rooms, delivery rooms, and similar places are given in this section.

In hazardous locations, as defined in Section III, all installations and equipment should be in conformity with the standards for Class I, Group C, locations given in Chapter 5, Article 500, of the National Electrical Code as published under date of November, 1940.

In locations of limited hazard, as defined in Section III, permanent wiring and equipment should conform to the standards of the Code applying to non-hazardous locations. Portable electrical equipment and appliances, unless of a type suitable for use in hazardous locations, should be excluded from locations of limited hazard during their occupancy by patients or by anesthesia equipment in an operating condition.

In non-hazardous locations all electrical wiring and equipment should conform to the standards of the Code applying to such locations.

Arrangement of Circuits

In hazardous locations all electrical circuits should be fed by an insulating transformer which isolates them electrically from the main feeder and from other circuits in the building. This transformer should be of the dry type and should be installed outside the hazardous location. It may be considered as a special form of branch feeder. The primary winding should be connected to the main feeder, in the same manner, and with the same control and protective devices, as any other branch feeder of the electrical installation. One side of the primary circuit should be grounded in an approved manner and the other side provided with an approved overcurrent device located outside the hazardous location. The

primary winding should never be connected directly to a high voltage circuit. Both sides of the secondary circuit should be ungrounded and an approved overcurrent device should be provided in each side of every branch circuit connected thereto. Voltages across the ungrounded circuits should not exceed 115 volts.

In addition to the usual control and protective devices the ungrounded system should be provided with ground contact indicator arranged as follows: A resistance of not less than 10,000 ohms should be connected across the secondary circuit of the transformer. A relay, installed outside the hazardous location, should be connected with its winding between the mid-point of this resistance and ground. The relay should operate when either side of the secondary circuit is connected to ground.* A signal lamp showing a green color, installed in some conspicuous location, should be connected to the back contact of the relay so that it shall be lighted when no current flows through the relay winding. A signal lamp showing a red color, installed adjacent to the green lamp, should be connected to the front contact of the relay so that it shall be lighted when current flows through the relay winding. Warning is thus given of any connection between either side of the secondary circuit and ground and, hence, of any hazardous defect in any wiring or equipment connected thereto.

Service Equipment

All service equipment, switchboards, or panelboards should be installed in a non-hazardous location.

Overcurrent Devices

All overcurrent and other protective devices should be installed in a non-hazardous location.

Wiring Method

In any location, the exposed non-current metal parts of equipment such as in a rigid conduit which is grounded in an approved manner. All wiring should be installed as specified in Section 5014 of the National Electrical Code.

Grounding

In any location, the exposed non-current metal parts of equipment such as the frames or metal exteriors of motors, fixed or portable lamps or appliances, fixtures, cabinets, cases, and conduit should be grounded as provided in Article 250 of the National Electrical Code. The locknut-bushing, and the double locknut types of contact should not be depended upon for bonding purposes, but bonding jumpers with proper fiittings or other approved means should be used. All grounding should be installed as specified in Section 5025 of the National Electrical Code.

Lighting Fixtures

In hazardous locations in accordance with the standards of the National Electrical Code, Section 5020, lamps in fixed positions shall be enclosed in a manner approved for use in explosive atmospheres, and shall be properly protected by substantial metal guards or other means where exposed to breakage. Lamps shall not be of the pendent type unless supported by and supplied through hangers of rigid conduit or flexible connectors approved for use in explosive atmospheres. If

* For a given value of resistance across the secondary circuit the relay will receive maximum power when the resistance of its winding is equal to ¼ of this value. The voltage across the relay winding in this case will be ¼ of that across the secondary circuit.

rubber covered conductors are used they shall have insulation not less than 3/64 inch thick. Rigidly mounted fixtures shall be strongly supported.

Exceptions may be made, as follows, provided the room ventilation fully meets the specifications of Section IV:

(a) In the case of permanently mounted lamps, either fixed or adjustable, which are so constructed and so located that no part may be brought within 7 feet of the floor.

(b) In the case of lamps mounted in or behind the walls in housings ventilated independently of the atmosphere of the room and from which this atmosphere is excluded by substantial vapor-tight glass windows, no portion of which is within five feet of the floor, approximately flush with the wall.

Lighting Switches

In hazardous locations, in accordance with the standards of the National Electrical Code, Section 5019, switches controlling lighting circuits shall be of a type approved for use in explosive atmospheres.

Such switches should be of the double-pole type and should open both sides of the ungrounded circuits which they control. Attention is called to the fact that mercury-type switches, although producing no exposed spark on operation, when in normal condition, are not approved by the Underwriters' Laboratories for use in explosive atmospheres unless enclosed in explosion-proof housings.

Receptacles and Attachment Plugs

In hazardous locations, in accordance with the standard of the National Electrical Code, Section 5023, receptacle and attachment plugs shall be so connected, as part of a unit device with an explosion-proof interlocking switch, that the plug cannot be removed while the switch is in the "on" position, or approved devices in which the circuit is broken in an explosion-proof enclosure shall be used. Such receptacles and plugs shall be of the polarized type which provides a connection for the grounding conductor of the portable cord.

Flexible Cord

In hazardous locations, in accordance with the standards of the National Electrical Code, Section 5022, flexible cord for portable lamps or portable electrical appliances shall be of a type designated for hard usage, such as Type S. Such flexible cord shall contain one extra insulated conductor to form a grounding connection for metal lamp guards, motor frames, and all other exposed metal portions of portable lamps and appliances. The outer covering of this grounding conductor shall be finished to show a green color. Portable cords connected directly to supply conductors shall be securely supported so that the probability of a break in the conductors at this point shall be minimized.

Portable Lamps

In hazardous locations, in accordance with the standards of the National Electrical Code, Section 5021, portable lamps shall be enclosed in a manner approved for explosive atmospheres and shall be protected against breakage by approved types of guards. Lamp holders for such portable lamps shall be of moulded composition or other approved material and of the keyless type with no exposed metal parts. Portable lamps in hazardous locations should not be equipped with switches. Current should be turned on or off at an explosion-proof outlet receptacle.

Motors

In hazardous locations, in accordance with the standards of the National Electrical Code, Section 5016, motors and generators shall be of a type approved for use in explosive atmospheres.

Belting

In any location, all belting used in connection with rotating machinery should have incorporated in it sufficient conductive material to prevent the development of electrostatic charges.

Control Devices

In hazardous locations, in accordance with the standards of the National Electrical Code, Section 5017, devices or apparatus, such as motor controllers, thermal cut-outs, switches, relays, the switches and contactors of auto-transformer starters, resistance and impedance devices, which tend to create arcs, sparks, or high temperatures, shall not be installed unless such devices or apparatus are of a type approved for use in explosive atmospheres.

It is recommended that such devices be installed in a non-hazardous location and actuated by some suitable mechanical hydraulic, or other non-electrical remote control device which may be operated from any desired location. This applies particularly to foot and other switches which must be operated from a location at or near the floor.

Suction and Pressure Equipment

In any location suction apparatus should be of the aspirator type, driven either by compressed air or by water jet. Where necessary to use motors for driving the pumps of suction, pressure, or insufflation equipment, whether of the unit type or of a type having a common pump installed outside a hazardous location, they should be of a type approved for use in explosive atmospheres. The pumping equipment and any non-electrical auxiliaries should be of a type approved for use with explosive vapors.

With all suction apparatus, means should be provided for liberating the exhaust gases in a location where they shall be effectively dispersed without coming in contact with a possible source of ignition.

Low Voltage Circuits

In any location, all electrical apparatus or equipment having exposed current-carrying elements, or which is frequently in contact with the bodies of persons, should be of a type operating on a voltage of not over 6 volts. Power may be supplied to such apparatus or equipment from individual transformers connected to an outlet receptacle by means of a plug and cord of types approved for use in explosive atmospheres or by a common transformer installed in a non-hazardous location. Transformers for supplying low voltage circuits should have approved means for insulating the secondary circuit from the primary circuit and should have cores and cases grounded in an approved manner.

Power may also be supplied to low voltage circuits from individual batteries made up of dry cells or from common batteries made up of storage cells in a non-hazardous location.

Any receptacle or attachment plug used on low voltage circuits should be of a type which does not permit interchangeable connection with circuits of higher voltage. Exposed non-current-carrying metal parts of electrical equipment or apparatus operating on voltages of 6 volts or less should not be grounded.

Cautery Equipment

Cautery equipment, either of the hot-wire or of the radio-frequency type, should be used only in non-hazardous locations. All hot-wire cautery apparatus should be operated on voltages of 6 volts or less.

Illuminating Instruments

In any location, all instruments for providing electrical illumination which are brought into close contact with the bodies of persons, such as endoscopic instruments, head lamps, and the like, should be operated at voltages of 6 volts or less. Switches and control devices for such instruments should be operated at a distance of at least 3 feet from any portion of any system containing mixtures of explosive gases.

Diathermy and X-Ray Equipment

Diathermy and X-ray equipment should be provided with an approved form of grounded electrostatic shield. All switches and control devices for diathermy and X-ray equipment should be operated outside the hazardous location.

Signaling Systems

In hazardous locations, in accordance with the standards of the National Electrical Code, Section 5027, all equipment of signaling and communication systems, irrespective of voltage, shall be of a type approved for use in explosive atmospheres. All wiring for such systems shall be installed in accordance with Section 5014 of the Code.

Section VII

REDUCTION OF ELECTROSTATIC HAZARD

The recommendations of this section, which have been formulated for the purpose of reducing the possibility of electrostatic spark discharges and, hence, of the ignition of flammable gases by the energy liberated thereby, should be followed in all hazardous locations and in all locations of limited hazard.

Flooring

Flooring should be so constructed as to provide an electrically conductive path between any body making electrical contact with it and the building ground. An electrode for testing the performance of such floor should exert a pressure of 5 pounds uniformly over a circular area of surface 2 inches in diameter. With resilient flooring this electrode should be a cylinder of brass; with hard surface flooring it should be a disk of soft metal foil backed by a disk of resilient material of such character as to assure intimate contact with the floor. The resistance between the electrode and the building ground may be measured by a direct reading ohmmeter. The resistance between the electrode and ground, for any position of the electrode on the flooring surface, should be not more than 10,000 ohms.

Furniture

All furniture should be constructed of metal or of other electrically conductive material. Surfaces on which movable objects may be placed should be without paint, lacquer, or other insulating finish. All rubber used for casters, tires, or leg tips, or for surface finishing, should be of the conductive type or of equivalent material. The resistance between the metallic frame of any piece of furniture, or any metallic object placed thereon, and a metallic plate placed under

any one supporting member, but insulated from the floor, should be not more than 10,000 ohms.

All furniture should be equipped with non-metallic leg tips or casters.

Mattresses and Pads

The coverings of all operating tables and stretcher pads and of all pillows, cushions, and the like, should be fabricated from sheeting of conductive rubber or equivalent material. Such conductive material should have a surface conductivity of not less than 10 micromhos per square centimeter and a longitudinal resistivity of not more than 10,000 ohms per centimeter square.*

* See Appendix.

Waterproof Sheeting

All waterproof sheeting, such as rubber sheeting, should be made of conductive rubber or similar material. Such conductive material should have a surface conductivity of not less than 10 micromhos per square centimeter and a longitudinal resistivity of not more than 10,000 ohms per centimeter square.

Rubber Tubing and Parts

All rubber or equivalent parts of operating room equipment, such as the masks, breathing tubes, breathing bags, and gaskets of anesthesia equipment, and all suction and pressure tubing not confined within a metallic sheathing, should be of conductive rubber or equivalent material. Such conductive material should have a surface conductivity of not less than 19 micromhos per square centimeter and an internal resistivity of not more than 10,000 ohms per centimeter cube.

Shoes

All shoes should have soles of conductive rubber, conductive leather, or equivalent material. They should be so fabricated that the resistance between a metal electrode placed inside the shoe and making contact with the inner sole, equivalent in pressure and area to normal contact with the foot, and a metal plate making contact with the bottom of the outer sole, equivalent in pressure and area to normal contact with the floor, shall be not more than 100,000 ohms.

All shoes should be tested on the wearer at least once on each day on which they may be worn in a hazardous location. Such test may be made by a direct reading ohmmeter, or similar approved instrument, indicating the resistance between two insulated electrodes so located that the wearer may stand in a normal manner with one foot on each electrode. The electrodes may be of some non-oxidizing metal such as stainless steel, or of conductive rubber or equivalent material for which the resistance between a metal electrode, exerting a pressure of 5 pounds uniformly over a circular area of surface 2 inches in diameter, and the terminal for connection to the indicating instrument is not more than 500 ohms. Shoes for which the indicated resistance between electrodes is 1 megohm, or less, are considered safe. Shoes for which this indicated resistance is greater than 1 megohm, but less than 4 megohms, are considered as marginal. Shoes for which the indicated resistance is greater than 4 megohms are considered unsafe.*

Shoes having nails which may contact with the floor should not be permitted in hazardous locations.

* These limits correspond to resistances of 250,000 ohms and 1 megohm, respectively, between the body of the wearer and ground, when standing with both feet in contact with a conductive flooring.

Wool

Blankets, sheets, covers, or outer garments of wool, or containing wool, should be excluded from all hazardous locations and from all locations of limited hazard.

Silk and Synthetic Textiles

Fabrics of silk or of synthetic textile materials such as rayon, including "sharkskin," should never be permitted in hazardous locations, or in locations of limited hazard, as outer garments or for any other purpose except hosiery or undergarments.

Plastics

Parts of hard rubber, bakelite, or any plastic material which is a non-conductor of electricity, should not be used on any equipment or instrument except where necessary as an electrical insulator on an approved device.

Cover for Anesthesia Equipment

Cover of fabric or of any form of sheeting should never be used on anesthesia equipment.

Intercoupling

In hazardous locations and in locations of limited hazard where the electrical characteristics of the floor do not meet the specifications of this section, or where persons and objects are not in electrical contact with a common conductive medium, some other suitable means should be provided for the intercoupling of those persons and objects most likely to be in the region adjoining the anesthesia machine. In situations where the electrical wiring and equipment meet the specifications of Section VI, this intercoupling may be obtained by direct inter-connection, using suitable leads having bracelets or clamps for connecting to persons or objects. Should the electrical installation not meet these specifications, some approved form of high resistance intercoupling should be used. This should be so arranged as to maintain a conductive path between any two bodies of the intercoupled group, or between any one body of this group and ground, the resistance of which is not less than 200,000 ohms nor more than 1,000,000. Any intercoupled system should include the patient, the anesthetist, the operating table, and the anesthesia machine.

Appendix

ELECTRICAL PROPERTIES OF CONDUCTIVE RUBBER

The electrical properties of conductive rubber can not be expressed completely in terms of the specific resistance alone. Determinations based on the measured resistance, R, of a homogeneous sample of the rubber placed between metallic electrodes, when substituted into the equation for the specified resistance

$$p = R\frac{A}{1} \qquad (1)$$

give results which vary between very wide limits for different values of the cross-sectional area, A, perpendicular to the lines of current flow, and of the length, 1, of the conductive path parallel to the lines of current flow. From the nature of the relation between the observed results and the magnitudes of A and of 1, it appears that there is a resistance of considerable magnitude at the boundary between the metallic electrode and the conductive rubber. That such a high con-

tact resistance does, indeed, exist may be verified by simple experiments. It becomes essential, therefore, in order to describe or to specify adequately the performance of conductive rubber, to be able to evaluate separately both this contact resistance and the internal, or inherent, resistivity of the material.

The internal resistivity may be determined directly by conventional methods. A known current, sent through a sample of the conductive rubber between current electrodes making contact with its surface at the ends of a strip having uniform cross section perpendicular to the lines of current flow, causes a potential drop along a given length which is proportional to the internal resistance of that length of the sample. This potential drop may be measured by electrodes placed on the surface between the current electrodes and making contact along lines at right angles to the lines of current flow. The arrangement of the circuits for this measurement are shown in Figure 1. By using a potentiometer, which, at the balance point, permits no current to flow through the potential electrodes, the existence of any contact resistance between these electrodes and the material is without effect on the determination. The ratio of the measured potential drop to the known current is, in this case, the true internal resistance of the length of the sample between the potential electrodes. The *internal resistivity, p,* in ohms per unit cube, is then obtained by multiplying the resistance thus computed by the ratio of the cross-sectional area, A, of the sample at right angles to the lines of current flow to the length, 1, of the sample between the potential electrodes, as in equation (1).

Unfortunately no such simple method is available for the determination of the contact resistance. If we were justified in assuming that the internal resistance were independent of the orientation of the material we might compute the contact resistance for both faces as the difference between the total resistance between electrodes placed on opposite faces and the internal resistance of the material between these faces. This would involve determining the internal resistivity for a rectangular parallelepiped of the material by the method just described and then measuring the total resistance between electrodes placed on opposite faces. The lines of current flow in these two cases are, however, at right angles to each other and there is no assurance that the internal resistivity determined for one case is correct for the other.

The contact resistance can, however, be determined indirectly from measurements made with a single arrangement of four electrodes on a homogeneous sample of the material having the form of a rectangular parallelepiped. Let a current electrode be placed in contact with one surface of this rectangular parallelepiped at one end, covering the surface for a distance d from the end. Let the inner edge of the electrode make contact with the surface along a line perpendicular to the lines of current flow as current passes from this electrode to a similar electrode similarly placed at the other end of the sample. Both electrodes should be in contact with one surface of the test piece, as shown in Fig. 1, and the lines of current flow in the main body of the material should be parallel to this surface. The resistance between one metallic electrode and a plane through its inner edge, perpendicular to the lines of current flow, depends both on the contact resistance between the electrode and the conductive material and on the internal resistance of the material. This follows from the fact that current entering the sample at a distance from the inner edge of the electrode must pass first through the contact resistance of a narrow strip parallel to the edge and then through the internal resistance of the length between this strip and the edge. The whole

sample may, in fact, be considered as an electrical network, as shown in Fig. 2, made up of many very small current paths, the resistance of some being due to the contact effect at the surface and of others to the internal resistance of the material. This contact resistance may be expressed as g, the surface conductance in mhos per unit length of sample parallel to the line of current flow. This internal resistance may be expressed as r, the resistance in ohms per unit length of sample parallel to the lines of current flow. This latter value may be determined as previously described.

The effective resistance between the electrodes and planes through their inner edges may be determined by measuring the total resistance between the two electrodes and subtracting the resistance due to that portion of the sample included between the planes. The total resistance, Rr, between the electrodes may be determined, by means of the circuits shown in Fig. 1, by transferring the con-

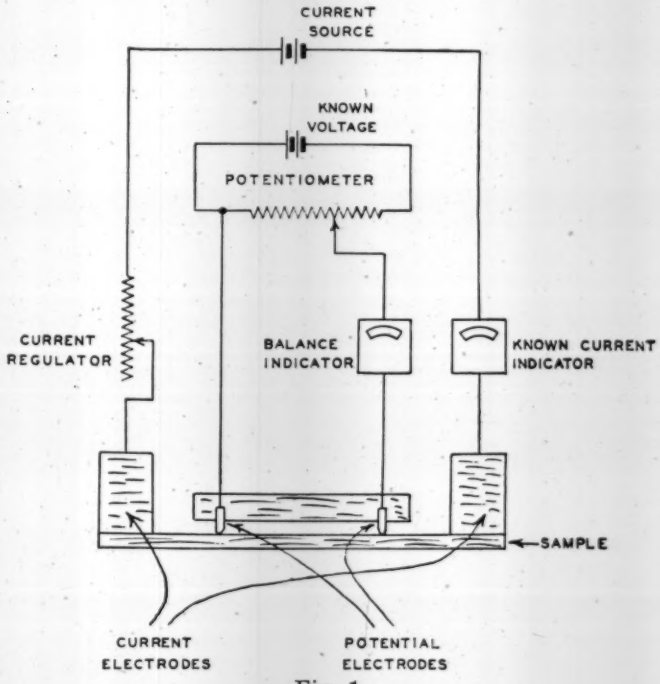

Fig. 1

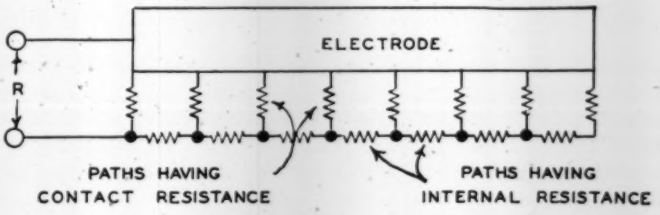

Fig. 2

nections of the potentiometer to the current electrodes and measuring the total potential drop in the same manner as that used for determining the internal resistance. The resistance of the material between the two inner edges of the electrodes and parallel to the lines of current flow may be computed as the product of the resistance per unit length, r, and the distance, D, between these inner edges. The resistance, R, under a single electrode may be considered as being ½ of the electrode resistance. In other words,

$$R = \frac{R_T - rD}{2} \qquad (2)$$

We, therefore, have a value for R, the resistance between one electrode and the plane through its inner edge, and a value for r, the internal resistance per unit length of the sample. The problem now is to determine the value of g, the surface conductance per unit length.

It is difficult to express g explicitly in terms of the two known resistance values. It is possible, however, to compute values of the ratio R/r for a number of assumed values of the product rg, taking into account the length of the particular electrode used in the measurements, measured parallel to the lines of current flow. These values may be plotted against each other, preferably on logarithmic graph paper. We may, therefore, compute the ratio R/r from the available data, look up the corresponding value of rg on the chart, and divide the latter by the known value of r to obtain the desired value of g. From this we may obtain the surface conductivity G, in mhos per unit area, by dividing g by the width of the sample.

Representative values for the two quantities, R/r and rg, are given in Table I. In computing these values the length of the electrode parallel to the lines of current flow was assumed to be 2 cm.

In practice it has been found convenient to use a test piece 10 cm. long and 2 cm. wide cut from a sheet sample of the material. Grease and other foreign matter should be removed from the surface by wiping lightly with a cloth moistened with acetone. Suitable current electrodes may be made from blocks of brass 2 cm. wide and weighing 400 gm. each. Placed one on each end of the strip. they extend in for 2 cm., cover an area of 4 sq. cm. each, and exert a pressure of 100 gm. per sq. cm. The potential electrodes may be bars of brass 1/16 in. thick set parallel to each other in slots in a block of non-conductive material so that they are maintained at a fixed separation of 10 cm. The general arrangement of electrodes and sample is shown in Fig. 1. Accuracy in placing the electrodes may be insured by extending them over the sides of the sample and locating them by means of pins fixed in a non-conducting base.

The electrical connections are shown diagrammatically in Fig. 1. All readings of voltage magnitudes are made by means of a calibrated scale on the potentiometer.

For conductive materials in the form of thin sheeting, particularly when such sheeting is not homogeneous but contains a fabric or other non-conductive insert, the resistance effective to current flowing longitudinally through the sheeting, i.e., parallel to the surface, is particularly significant. This property may be evaluated most conveniently in terms of the resistance of a portion one centimeter long of a strip of the sheeting one centimeter wide. This may be termed the *longitudinal resistivity* of the material. Like the internal resistivity, it must be evaluated

independently of any surface contact effects. Its value may be obtained quantitatively by multiplying r by the width of the sample, in the same way that surface conductivity was obtained from g by dividing by the width. Although there is no conventional unit for this property, numerical values may be expressed in terms of ohm per centimeter square.

TABLE I.

Electrode length = 2 cm.

Values of rg	Values of R/r	Values of rg	Values of R/r
0.0006	833	0.40	1.86
0.0010	500	0.60	1.41
0.0015	334	1.0	1.04
0.0025	201	1.5	0.829
0.0040	125	2.5	0.634
0.0060	84.0	4.0	0.501
0.010	50.7	6.0	0.408
0.015	33.9	10	0.316
0.025	20.6	15	0.258
0.040	13.2	25	0.200
0.060	9.00	40	0.158
0.10	5.63	60	0.129
0.15	3.96	100	0.100
0.25	2.63		

NINTH ANNUAL MEETING

AMERICAN ASSOCIATION OF NURSE ANESTHETISTS

September 15 to 19, 1941, inclusive

ATLANTIC CITY, NEW JERSEY

Held in conjunction with the American Hospital Association

HOTEL HEADQUARTERS:	Ritz-Carlton
GENERAL SESSIONS:	Held in Emily Denton Hall Badge is entrance requirement
REGISTRATION:	In Emily Denton Hall Monday, September 15 through Thursday, September 18, 9:00 A.M. to 12:00 P.M. and 2:00 to 4:00 P.M. Fee $1.00 Members and guests are also asked to register with the American Hospital Association
BANQUET:	Tickets should be secured at Registration Desk as soon as possible
EXHIBITS:	Commercial and educational exhibits open daily from 9 to 5.

TENTATIVE PROGRAM

Sunday, September 14

MEETING OF THE BOARD OF TRUSTEES

Ritz-Carlton Hotel

Monday, September 15

GENERAL SESSION

Emily Denton Hall

2:00-4:30 P.M.

Edwina M. Irons Presiding
Protestant Episcopal Hospital, Philadelphia

Invocation
The Reverend Warren W. Way, Rector
St. James Episcopal Church, Atlantic City

Address of Welcome
The Honorable Thomas D. Taggart, Jr.
Mayor of Atlantic City

Greetings from the American Hospital Association
Benjamin W. Black, M.D., President
Alameda County Institutions, Oakland, California

"Dental Anesthesia"

Victor H. Frank, D.D.S.

Departments Oral Surgery and Exodontia, Graduate Hospital University of Pennsylvania, and Mount Sinai Hospital, Philadelphia

"Facial Palsy"

Oscar V. Batson, M.D., M.A.

Professor of Anatomy, Graduate School of Medicine; University of Pennsylvania Hospital; Graduate Hospital; Protestant Episcopal Hospital and Philadelphia General Hospital

"Pentothal Sodium"

Paul Mecray, Jr., M.D., M.Sc.

Assistant Surgeon, Cooper Hospital, Camden, N. J.; Visiting Surgeon, Camden County General Hospital, Lakeland, New Jersey

"Traumatic Surgery"

Harry Subin, M.D., F.A.C.S.

Assistant Surgeon and Assistant Orthopedic Surgeon, Atlantic City Hospital; Orthopedic Surgeon, Pine Rest Hospital for Tuberculous Diseases; Orthopedic Surgeon, Bacharach Home for Crippled Children, Atlantic City

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Tuesday, September 16

BUSINESS SESSION

Emily Denton Hall

9:00 A.M.-12:00 P.M.

Helen Lamb, President, Presiding

Roll Call

Reading of Minutes

Reports—

President	Helen Lamb
Executive Secretary	Anna Willenborg
Treasurer	Gertrude L. Fife
Historian	Leone M. Myers
Standing Committees:	
Membership	Lucy E. Richards
Revisions	Verna M. Rice
Publishing	Gertrude L. Fife
Legislative	Miriam G. Shupp
Nominating	Gertrude Troster
Educational	Agatha C. Hodgins
Curriculum	Rosalie C. McDonald
Finance	Gertrude L. Fife
Trust Fund	Verna M. Rice
Executive	Helen Lamb
Special Committees:	
Defense Program	Miriam G. Shupp
Public Relations	Miriam G. Shupp
Seal	Louise Schwarting

GENERAL SESSION

Emily Denton Hall

2:00-4:30 P.M.

Alice Racette Presiding
Ellis Hospital, Schenectady, N. Y.

"Vinethene Anesthesia"
Edward T. Crossan, M.D.
Chief Surgeon, Protestant Episcopal Hospital, Philadelphia

"Continuous Spinal Anesthesia"
William T. Lemmon, M.D.
Assistant Professor of Surgery, Jefferson Medical College, Philadelphia; Surgeon, Philadelphia General Hospital

"The Art of Anesthesia"
Temple Fay, M.D.
Professor of Neurology and Neurosurgery, Temple University School of Medicine, Philadelphia

"Anesthesia in Thoracic Surgery"
V. Earl Johnson, M.D., F.A.C.S.
Chief, Department of Surgery, Atlantic City Hospital and Shore Memorial Hospital; Chief, Fracture Clinic, Atlantic City Hospital; Consulting Surgeon, Children's Seashore Home, Atlantic City

"Helium in Anesthesia"
Frances Hess, Director School of Anesthesia
Long Island College Hospital, Brooklyn

BANQUET — RITZ-CARLTON HOTEL

7:00 P.M.

Invocation
The Reverend Richard F. Garnet, A.M., B.D.
St. Andrews by-the-Sea Evangelical Lutheran Church, Atlantic City
Introduction of Guests
Music
Guest Speaker

Wednesday, September 17

INSTRUCTORS' SESSION

Emily Denton Hall

8:00-12:00 A.M.

Sister Rudolpha, O.S.F., Presiding
Director, School of Anesthesia
St. John's Hospital, Springfield, Illinois

GENERAL SESSION

Emily Denton Hall

2:00-4:30 P.M.

Nelle G. Vincent Presiding
Evanston Hospital, Evanston, Illinois

"Practical Demonstration of the Combustibility of Various Gases"
David B. Labowitz, Ph.G.
Medicinal Oxygen Company, Pittsburgh

"Helium—The Flame Quencher"
George J. Thomas, M.D., F.I.C.A.
Instructor of Anesthesia, School of Medicine, University of Pittsburgh

Report of Survey Concerning Accidents Occurring During the Administration of Anesthetics by Nurse Anesthetists
Miriam G. Shupp
Strong Memorial Hospital, Rochester, N. Y.

"The Advantages and Disadvantages of Carbon Dioxide with Oxygen in General Anesthesia"
Edward W. Beach, M.D., F.I.C.A.
Assistant Professor of Anesthesia, Graduate School of Medicine; Chief, Department of Anesthesia, Graduate Hospital, Pennsylvania Hospital and Willis Hospital, Philadelphia

Movie — Current Practices in Operating Oxygen Therapy Equipment (courtesy of the Linde Air Products Company)

"Anesthesia in Obstetrics"
Leonard C. Hamblock, A.B., M.D., F.A.C.S.
Obstetrician and Gynecologist-in-Chief, Methodist Hospital, Philadelphia; former Consulting Gynecologist, Philadelphia Orthopedic Hospital

MEETING OF ADVISORY COUNCIL
Emily Denton Hall
4:30-6:00 P.M.
Miriam G. Shupp Presiding

Thursday, September 18

MEETING OF ADVISORY COUNCIL
(Continued)
Emily Denton Hall
8:00-9:45 A.M.
Miriam G. Shupp Presiding

GENERAL SESSION
Emily Denton Hall
9:45 A.M.—12:00 P.M.
Rose G. Donavan Presiding
Mount Sinai Hospital, Philadelphia

Round Table

Reading of the Prize Winning Papers—
National Contest for Student Anesthetists

BUSINESS SESSION

2:00-4.30 P.M.

Helen Lamb, President, Presiding

Unfinished Business

Report of Tellers

Introduction of New Officers

The Educational Committee requests that questions for discussion at the Instructors' Session be sent as soon as possible to Sister Rudolpha, St. John's Hospital, Springfield, Illinois.

OFFICIAL NOTICE

The members of the American Association of Nurse Anesthetists are hereby notified that revisions and amendments of the By-Laws will be presented for consideration at the business session of the annual meeting, which will be held in Atlantic City, New Jersey, September 15-18, 1941.

VERNA M. RICE
Chairman Revisions Committee
RUTH BOTSFORD
MYRA BELLE QUARLES

The annual business meeting of the University Hospitals (Lakeside) School of Anesthesia Alumnae Association will be held in Atlantic City during the convention of the American Association of Nurse Anesthetists. The time and place will be announced in the "Special Events Division" of the program of the American Association of Nurse Anesthetists.

AMERICAN ASSOCIATION OF NURSE ANESTHETISTS

OFFICERS

1940-1941

President	Helen Lamb Barnes Hospital, St. Louis, Mo.
First Vice-President	Rosalie C. McDonald Emory University Hospital, Atlanta, Ga.
Second Vice-President	Rose G. Donavan Mount Sinai Hospital, Philadelphia, Pa.
Treasurer	Gertrude L. Fife University Hospitals, Cleveland, Ohio
Historian	Leone Myers Ravenswood Hospital, Chicago, Ill.

Trustees:

Helen Lamb, Chairman, Missouri	Miriam G. Shupp, New York
Rosalie C. McDonald, Georgia	Louise E. Schwarting, Iowa
Gertrude, L. Fife, Ohio	Lucy E. Richards, Ohio
Agatha C. Hodgins, Massachusetts	Hazel Blanchard, New York

ACTIVITIES OF STATE ORGANIZATIONS

ALABAMA

The Alabama anesthetists held their annual meeting the evening of April 2, 1941, in the Assembly Hall at St. Vincent's Hospital, Birmingham, with Frances Bishop, President, presiding. Twenty-three members and guests were present.

The annual reports showed a definite increase in membership and interest. At the banquet following the business meeting Dr. S. L. Ledbetter, Jr., spoke on "The History of Anesthesia" and the rôle played by nurse anesthetists.

Officers Elected:

President
Hattie M. Barnes
South Highlands Infirmary, Birmingham

Vice-President
Ruth Hyde
St. Vincent's Hospital, Birmingham

Secretary
Evelyn Prock Rushing
2930 Clairmont Ave., Birmingham

Treasurer
Stephanie Foto
St. Vincent's Hospital, Birmingham

Trustees
Hattie M. Barnes
Anne M. Beddow
Alma Clyde Foust
Ruth Hyde
Evelyn Prock Rushing

HATTIE M. BARNES
President

GEORGIA

During the past year monthly meetings of the Georgia anesthetists (except during the summer) have been held in Atlanta, and lectures were given as follows:

"Atelectasis"
F. P. Parker, M.D., Associate Professor of Pathology, Emory University

"Blood Studies during Anesthesia in Infected and Non-infected Cases"
J. D. Martin, M.D., Associate Professor of Clinical Surgery, Emory University

"Anoxia"
H. Haldi, M.D., Associate Professor of Physiology, Emory University

"Electrocardiography"
G. Bachman, M.D., Professor of Physiology, Emory University

"Sodium Pentothal Anesthesia"
Fred Rudder, M.D., Atlanta

Treasurer's Report

Cash on hand April 1, 1940		$ 38.65	
Receipts			
Proceeds from: turkey raffles	$ 93.03		
rummage sales	27.08		
Contributions from members	7.00	127.11	
Dues		245.00	
Initiation fees		6.00	
			$416.76
Disbursements			
Dues to American Association		$165.75	
Initiation fees		6.00	
Remittance to Southeastern Assembly		36.62	
Office Expenses		28.46	
Delegate to Southeastern Assembly		10.00	$246.83
Cash on hand April 15, 1941			$169.93

Secretary's Report

Members in good standing	38
Delinquent members	4
Members transferred to Georgia Association	3
Members transferred from Georgia Association	6

The President of the Georgia Association, Miss Caroline Hohenschutz, of St. Joseph's Infirmary, Atlanta, was chosen as a delegate to the annual meeting of the American Association of Nurse Anesthetists, to be held in September in Atlantic City.

ILLINOIS

At the annual meeting of the Illinois Association, held in conjunction with the Tri-State Hospital Assembly in Chicago, May 7-8, 1941, the following officers were elected for the year 1941-1942:

President	Nelle G. Vincent Evanston Hospital, Evanston
First Vice-President	Gladys H. Hoffman Englewood Hospital, Chicago
Second Vice-President	Ann Priester West Suburban Hospital, Oak Park
Secretary	Marjorie R. Baker St. Joseph's Hospital, Chicago
Treasurer	Exire O'Day Ravenswood Hospital, Chicago
Historian	Edith H. Holmes 1044 N. Francisco Ave., Chicago
Trustees	Jean Roth Mae B. Cameron Sister Borromea

INDIANA

The fifth annual meeting of the Indiana Association of Nurse Anesthetists was held at the Stevens Hotel, Chicago, on May 7, 1941, in conjunction with the Tri-State Hospital Assembly. It was decided to send two delegates to the annual convention of the American Association of Nurse Anesthetists in September.

Officers Elected:

President

Ruth Hagen Hane
709 Kinnaird Ave., Fort Wayne

Vice-President

Helen M. Reitz
319 W. Louisiana St., Evansville

Secretary-Treasurer

Agnes M. Lange
326 Arcadia Court, Fort Wayne

Trustee (3-year)

Thelma A. Deane

RUTH HAGEN HANE
President

KANSAS

The Kansas Association of Nurse Anesthetists held a short meeting at the President Hotel, Kansas City, Missouri, April 24, 1941, with Viola H. Baker, president, presiding. It was voted to hold the annual meeting in conjunction with the Midwest Anesthetists' Assembly.

The Kansas Association is making an effort to contact all anesthetists in Kansas in order to obtain a larger membership. The anesthetists at Wesley Hospital, Wichita, Kansas, are raising funds for the Association by selling empty ether cans. May we have other suggestions for making money?

MASSACHUSETTS

The last meeting of the fiscal year of the Massachusetts Association of Nurse Anesthetists was held on May 24, in the French Room of the Ritz-Carlton Hotel, Boston, with fourteen present.

It was voted to defray a portion of the expenses of Miss Gladys McCracken, of Massachusetts General Hospital, as a delegate to the annual convention of the American Association of Nurse Anesthetists. Tea was poured by Miss Gertrude Gerrard of Peter Bent Brigham Hospital.

The Massachusetts Association will hold its annual meeting the first week of September, in Worcester. For further information write Miss Betty E. Lank, Secretary-Treasurer, 300 Long Avenue, Boston.

MICHIGAN

Officers elected at Michigan meeting, held in Chicago May 7-8, 1941:

President
Lillian G. Baird
University of Michigan Hospital, Ann Arbor

First Vice-President
Kay Sheehan
St. Joseph's Mercy Hospital, Pontiac

Second Vice-President
A. Maude Galbraith
Butterworth Hosp., Grand Rapids

Secretary-Treasurer
Ione Wessinger
Ford Hospital, Detroit

Historian
Ora Mae Hartley
Beyer Hospital, Ypsilanti

Trustees:
Esther R. Mason
Mable Courtney
E. Louise Ilgenfritz
Ora Mae Hartley
Esther J. Meil

LILLIAN G. BAIRD
President

MINNESOTA

Sponsored by the Minnesota Association, a showing was given on April 4 of Dr. Vernon D. E. Smith's technicolor moving pictures of big game hunting in Canada and Alaska. The members sold tickets at 25¢ each; a write-up appeared in the Twin City newspapers; and the Hennepin County Medical Society donated the use of the Medical Arts Auditorium in Mnineapolis for the event. The net receipts of $58.85 will be used toward convention expenses.

At the regular April meeting of the Minnesota Association Dr. Ormond Culp of Ancker Hospital, St. Paul, spoke on "Pulmonary Embolism in Genito-Urinary Surgery." Dr. Vincent Swanson of the University Hospital, Minneapolis, gave a talk on "Spinal Anesthesia."

The seventh annual meeting of the Minnesota Association, held in St. Paul on May 23, 1941, drew an attendance of approximately fifty members and guests.

Palma A. Anderson and Hazel Peterson, of Minneapolis, were chosen to represent the Minnesota group at the annual meeting of the American Association in Atlantic City.

Treasurer's Report

Receipts

Dues	$474.00	
Proceeds — card party	39.00	
Proceeds — movie	72.25	$585.25

Disbursements

Dues to American Association	$321.50	
Expenses two delegates, $50 each	100.00	
Magazine subscription	10.00	
Subscription to "Anesthesiology"	6.00	
Gifts for Drs. Knight and Lundy	20.00	
Printing, miscellaneous	38.65	
Printing, tickets for movie	2.50	
Expenses, card party	8.98	
Operation of movie machine	8.00	
Postage	10.00	
Miscellaneous	6.78	532.41
Balance on hand April 1, 1941		$ 52.84

J. MARIE GRONVOLD, *Treasurer*

Officers Elected:

President
Palma A. Anderson
Deaconess Hospital, Minneapolis

Vice-President
Katherine Jurgenson
Swedish Hospital, Minneapolis

Secretary
Hazel Peterson
Fairview Hospital, Minneapolis

Treasurer
Elizabeth Gaertner
St. Mary's Hospital, Minneapolis

Trustees:
Ruth Walthers
Ruth Bergman

PALMA A. ANDERSON
President

MISSOURI

Miss Alice Gronewald, 416 South Kingshighway, St. Louis, has been appointed Secretary-Treasurer of the Missouri Association.

NEBRASKA

Mrs. Wilhelmina Gulotta, President of the Nebraska Association, represented that group at the meeting of the Mid-West Assembly of Nurse Anesthetists held in Kansas City, on April 24-25, 1941. The present officers of the Nebraska Association are as follows:

President
Wilhelmina S. Gulotta
1734 South 17th Street, Lincoln

Vice-President
Ruby Christensen
Bryan Memorial Hospital, Lincoln

Historian
Wilhelmina Gulotta

Secretary-Treasurer
Pauline Young
Bryan Memorial Hospital, Lincoln

Trustees
Ruth Owens
Marie Woodgate
Josephine Kramer
Sister Ursula
Agnes Hain

WILHELMINA S. GULOTTA
President

NEW JERSEY

The second annual meeting of the New Jersey Association of Nurse Anesthetists was held at the Berkeley-Carteret Hotel, Asbury Park, on May 14, 1941, with twenty-five members in attendance.

Mrs. Florence Hale, of St. Peter Hospital, New Brunswick, presided, and the address of welcome was given by the President, Mrs. Della Mifflin, of Cooper Hospital, Camden. Mr. John Eckhart, American Red Cross Field Director, Fort Monmouth, New Jersey, was the guest speaker.

The following papers were read:

"Relations between the Patient, Surgeon and Anesthetist"
Laura D. Bryant, Cooper Hospital, Camden

"Anesthesia from the Viewpoint of the Obstetrician"
Frank Hughes, M.D., Cooper Hospital, Camden

"Convulsions in Anesthesia"
Bebe Horwitt, St. Peter Hospital, New Brunswick

Officers:

President	Della L. Mifflin Cooper Hospital, Camden
Vice-Presidents	Florence Hale St. Peter Hospital, New Brunswick
	Helen F. White Beth Israel Hospital, Newark
Secretary	Frances M. Waters Cooper Hospital, Camden
Treasurer	Bebe Horwitt St. Peter Hospital, New Brunswick

Historian	Martha K. Glenn 212 Baldwin St., New Brunswick, N. J.
Trustees:	
1941-1945	Dorothy C. Ball
1940-1944	Martha Lowery
1940-1943	Leona Dangler Woram
1940-1942	Nathalie Hill

NEW YORK

The eighth annual meeting of the New York State Association of Nurse Anesthetists was held in New York City, May 21-23, 1941. An outstanding program was presented, which was published in full in the May issue of the Bulletin. Sixty-nine members and sixty-seven guests were registered, including anesthetists from Connecticut, Maryland, New Jersey, North Carolina, Missouri, Ohio and West Virginia.

The evening session, a new innovation this year, was a definite success, and as a result evening sessions will be included in the 1942 program.

Margaret Recker, 186 Washington Avenue, Brooklyn, was the winner in the drawing from the sale of tickets. The total sum realized was $158.90.

It was voted unanimously to schedule the following meetings for 1942:

Business meeting—in Buffalo, in conjunction with the New York State Hospital Association

Scientific meetings—Strong Memorial Hospital, Rochester, N. Y.
—University Hospitals of Cleveland, Ohio
(dates to be announced in a later issue of the Bulletin).

At a meeting of the Board of Trustees it was voted that a notice be placed in the Bulletin offering the members of the New York Association an opportunity to specify particular subjects for presentation at the 1942 meetings — the Program Committee to be guided in accordance with the greatest number of requests and its ability to procure papers on the subjects desired. Members to submit their suggestions to Alice M. Racette, Secretary, New York State Association of Nurse Anesthetists, Ellis Hospital, Schenectady, N. Y.

Miss Racette was chosen as a delegate to the annual meeting of the American Association of Nurse Anesthetists in September. Suggested revisions to the By-Laws were carefully reviewed and adopted, and will be printed in the near future.

Dr. James T. Gwathmey of New York City was the guest of honor at a luncheon on Thursday, May 22. The "speechless" banquet was well attended, and diversified entertainment, including a floor show, added to the enjoyment of all. Messages of greeting were read from Hazel Blanchard and Mrs. Flora M. Burg.

Report of Secretary

Applications for membership	50
Notifications of acceptance for active membership	24
Notifications of rejection	1
Applications awaiting approval from American Association	10
Delinquent members—1941:	
Active	6
Associate	0

Memberships discontinued:		
Illness		1
Marriage		1
Members suspended for non-payment of dues		3
Transfers from New York Association		24
Transfers to New York Association		16
Paid-up members May 23, 1941:		
Active	179	
Associate	7	
Total		186
Increase in membership over 1940		17
Pieces of incoming mail (with 569 enclosures)		421
Pieces of outgoing mail (with 2100 enclosures)		1043

Officers Elected:

President	Frances Hess Long Island College Hospital, Brooklyn
Vice-President	Gertrude Steffen Long Island College Hospital, Brooklyn
Secretary	Alice M. Racette Ellis Hospital, Schenectady
Treasurer	May A. Danaher 1845 Becker St., Schenectady
Historian	Anna Kline Rogge 260 Lenox Road, Brooklyn
Trustees:	Janet B. Dougan
2-year	Pauline E. Lapinski Martha T. Ziegler

Miss Alice Racette, Secretary of the New York Association, would appreciate hearing from anyone who knows the present address of Miss Joan H. Arthur, formerly of Brooklyn Hospital, Brooklyn.

OHIO

The eighth annual meeting of the Ohio Association of Nurse Anesthetists was held April 30, 1941, at the Deshler-Wallick Hotel, Columbus, in conjunction with the Ohio Hospital Association.

At the general sessions the following papers were read:

"Pharmacology of Anesthetic Agents"
Sister Mary John Geierman, Mercy Hospital, Toledo

"Physiology and Pharmacology of Anesthesia"
Alma Webb, Cincinnati General Hospital, Cincinnati

"Anesthesia from the Standpoint of a Hospital Administrator"
Sister M. Theodora, Good Samaritan Hospital, Cincinnati

"Anesthesia Problems in a Small Hospital"
Jeanette Taylor, Union Hospital, Dover

A round table was conducted by Dr. G. W. Brugler, Assistant Superintendent of the University Hospitals of Cleveland.

Officers Elected:

President	Myra E. Momeyer St. Luke's Hospital, Cleveland
First Vice-President	Romaine M. Stewart People's Hospital, Akron
Second Vice-President	Esther C. Pracejus Lutheran Hospital, Cleveland
Secretary-Treasurer	Helen U. Carney Youngstown Hospital, N. S. Unit, Youngstown

VIRGINIA

The seventh annual meeting of the Virginia Association of Nurse Anesthetists was held in the Club Room of the John Marshall Hotel, Richmond, on April 26, 1941, with Miss Georgia Scott presiding. Twenty-one of the total membership of sixty-one were present, and five visiting anesthetists from North Carolina.

Miss Scott gave a talk in regard to the work of the Association and expressed her desire to see the North and South Carolina anesthetists organized and plans made for the entire group to meet with the Tri-State Medical Association. Miss Cordelia Bakes of Norfolk General Hospital, Norfolk, led a round table on the problems of anesthesia. A vote of thanks was extended to the outgoing officers for their splendid work.

Following the business meeting a tour was made through the new Medical College of Richmond, and the annual banquet was held at the John Marshall Hotel in the evening.

Officers Elected:

President
Georgia C. Scott
Lewis-Gale Hospital, Roanoke

Vice-President
Mrs. Minnie Freese Payne
University of Virginia Hospital, Charlottesville

Secretary-Treasurer
Eunice V. Marberry
Jefferson Hospital, Roanoke

Historian
Vera G. Copeland
St. Elizabeth's Hospital, Richmond

Trustees:
3-year Rosa B. Scarce
1-year Cora Massie
1-year Marguerite B. Shiley

GEORGIA C. SCOTT
President

OREGON

The Oregon Association of Nurse Anesthetists opened its fifth annual meeting on May 14, 1941, in the Auditorium of the Medical Dental Building, Portland, with a salute to the flag led by the Tom Johnson Troop 203, Boy Scouts of America.

Following an address by the President, Anne Feser of Portland, the following papers were read:

"Anesthesia"
Richard B. Adams, M.D., Portland

"Anesthesia in a Rural Community" (moving pictures)
Comments by Alice Atkinson, Charlton Hospital, Tillamook

"Cyclopropane"
Aimee L. Doerr, Portland

A report of the meeting held in San Francisco in March by the Association of Western Hospitals, was given by Sister Agnes de Boheme, St. Vincent's Hospital, Portland, and a report of the meeting held in Tacoma, Washington, was presented by Mrs. Josephine Bunch, Portland. Fannie Ogelsby, Salem Hospital, Salem, was chosen delegate to the annual meeting in Atlantic City.

At 5:30 P. M. a reception was held at the residence of Mrs. Bunch. The banquet was held at the Congress Hotel, with a stimulating talk by Dr. Beatrice Young, followed by entertainment in a lighter vein.

The Oregon anesthetists will meet on October 13 at St. Vincent's Hospital, Portland.

Officers Elected:

President
Josephine A. Bunch
4030 S.W. Condor, Portland
First Vice-President
Alice Atkinson
Charlton Hospital, Tillamook
Second Vice-President
Carrie Nelson
1925 S. E. 56th Avenue, Portland
Secretary
Sylvia Martin
2282 N. W. Northrup, Portland
Treasurer
Ruth Pobochenko
5714 S. E. Belmont, Portland
Historian
Sister Agnes de Boheme
St. Vincent's Hospital, Portland
Trustees:
4-year Anne Feser
3-year Hazel Butler
2-year Elizabeth D. Johnson
1-year Aimee L. Doerr

JOSEPHINE A. BUNCH
President

OKLAHOMA

The Oklahoma Association of Nurse Anesthetists met June 4, 1941, at 8:00 P.M., in the Nurses' Residence of Valley View Hospital, Ada, Oklahoma.

A report of the Mid-West meeting was given by Mrs. Evelyn Johnson of McAlester Clinic, McAlester, Okla. A brief history of the founding of the Valley View Hospital and its association with the Commonwealth Foundation of New York was presented by Estelle Graham.

It was decided to hold four regular state meetings each year in various localities to enable a greater number of members to attend. The drive to increase the membership is being continued. All members are urged to attend the annual meeting and election of officers of the Oklahoma Association, which will be held in McAlester on September 7.

Light refreshments were served following the meeting.

WASHINGTON

At the second annual meeting of the Washington State Association of Nurse Anesthetists held in Tacoma, April 25-26, 1941 (program published in the May issue of the Bulletin), forty-five members and guests were registered.

Officers Elected:

President
Mrs. Mildred Peterson
705 Broadway, Seattle

Vice-President
Mary E. Leonard
Paulsen Medical & Dental Hospital, Spokane

Secretary
Rose O'Neill
1330 Boren Avenue, Seattle

Treasurer
Esther Rudkin
Deaconess Hospital, Spokane

Historian
Helen M. Zeimantz
Sacred Heart Hospital, Spokane

Trustees
Alice M. Claude
Martha B. Lee
Mrs. Nan Rowlands
Mary Simonson

MRS. MILDRED PETERSON
President

Present Status of Nurse Anesthetists in the United States Army and Navy

Letters of inquiry from our members have come to headquarters frequently of late, requesting information concerning the status of the nurse anesthetist in the present Defense Program. These letters indicate willingness and desire on the part of the individual to volunteer her services. It is, therefore, considered desirable to publish information pertinent to the subject.

At the convention held in Boston last September, Miss Miriam Shupp of Strong Memorial Hospital, Rochester, N. Y., was appointed Chairman of a committee to investigate such matters. Her correspondence with the Army and Navy officials has developed the following details:

> U. S. Army, Major Julia O. Flikke, Superintendent Army Nursing Corps: "Nurse Anesthetists are appointed to the Army Nurse Corps in the grade of nurse, with the relative rank of 2nd Lieutenant. They are subject to all the regulations governing regular army nurses. Since there is a need for anesthetists in the Nurse Corps at present, they are usually assigned to that duty. However, in some of the smaller Army hospitals, where more than one Nurse Anesthetist is on duty, they may be assigned to duties other than those of anesthetist."
>
> The rate of pay is $70.00 per month, with maintenance.
>
> U. S. Navy, Rear Admiral Ross T. McIntire, Surgeon General, U.S.N.: "Under existing Navy Regulations there is no provision whereby nurses may be appointed in the Nurse Corps of the Navy or Naval Reserve for duty limited to the administration of anesthetics. All appointments of nurses are for general nursing duties. However, if a member of the Navy Nurse Corps is qualified in the administration of anesthetics, she may be assigned to that duty by the Commanding Officer of the Naval Hospital or Station to which she is attached.
>
> "Modification of the present arrangements is not contemplated. It is considered to be to the best interests of the Medical Department not to designate nurses for the administration of anesthetics only, but to appoint applicants who hold this qualification as nurses for general nursing duties."

Whether the nurse anesthetist joins the Army or Navy service directly or through the Red Cross, she has the status and rank of nurse. While in view of the present need for anesthetists she would probably be assigned to duties in anesthesia, she must understand that since there is no separate division in either the Army or Navy for enlistment as merely anesthetist, she must be prepared to accept any assignment in general nursing, in which the service sees fit to place her. To the best of our knowledge, most of those of our members who have already entered the military service in this present emergency, are doing regular ward duty.

With the critical need before us for supplying more well trained nurse anesthetists to service the acute shortage which exists in civilian hospitals throughout the United States, the American Association of Nurse Anesthetists

is reluctant to urge the individuals of this highly trained group to forsake their specialized and badly needed service in these civilian hospitals, for possibly general nursing service in the military forces, under the regulations as they now exist.

Many of the University centers have organized "hospital units," that are subject to call in emergency. If an anesthetist does not desire to enroll for active service at this time, she can volunteer to the head of such hospital unit, for service with it as anesthetist in the event that that unit is called into service.

If an anesthetist desires to volunteer for service in the U. S. Army Nurse Corps she should apply to Major Julia O. Flikke, Superintendent Army Nurse Corps, Office of the Surgeon General, War Department, Washington, D.C. If she desires to enlist in the U. S. Navy Nurse Corps, she should apply to the Office of the Surgeon General, Bureau of Medicine and Surgery, Navy Department, Washington, D.C.

The American Association of Nurse Anesthetists through various contacts, is keeping in close touch with developments of the National Defense program. It is likewise in comprehensive touch with the acute needs of our civilian hospitals. By reason of the national scope of its acquaintance with both civil and military requirements, the American Association of Nurse Anesthetists desires the privilege of advising with its member State or Sectional Associations when they contemplate group recommendations relating to transfer from active civilian hospital service, to Red Cross, Army or Navy service under the regulations at present in effect in those fields.

Members American Association of Nurse Anesthetists

July 15, 1941

ALABAMA

Allen, Mrs. Edith Beeman	T. C. I. Hospital	Fairfield
Allen, Lola	McNease and Robertson Clinic	Fayette
Baldwin, Clarice P.	West End Baptist Hospital	Birmingham
Barnes, Hattie M.*	South Highlands Infirmary	Birmingham
Beddow, Ann M.	Norwood Hospital	Birmingham
Bishop, Frances	1012 South 26th St.	Birmingham
Boyles, Margie	Highland Baptist Hospital	Birmingham
Bradford, Elizabeth	South Highlands Infirmary	Birmingham
Burg, Mrs. Flora M.	Frasier Ellis Clinic	Dothan
Burns, Sarah Ola	Forrest General Hospital	Gadsden
Campbell, Bernice	1131 28th St., North	Birmingham
Cook, Mary E.	Colbert County Hospital	Sheffield
Engelland, Violet E.	Hillman Hospital	Birmingham
Foto, Stephanie	St. Vincent's Hospital	Birmingham
Foust, Alma Clyde	Colbert County Hospital	Sheffield
Fuller, Ella	St. Vincent's Hospital	Birmingham
Gandy, Nell	South Highland's Infirmary	Birmingham
Gath, Mrs. Fanny E.	Druid City Hospital	Tuscaloosa
Hicks, Ima McKenzie	1400 N. 25th St.	Birmingham
Hill, Mrs. Emily	Bellamy Hospital	York
Holmquist, Edith	(Temporary)	Buchanan, Mich.
Hyde, Ruth	St. Vincent's Hospital	Birmingham
Kilpatrick, Mrs. Wanita***	1606 South 12th Ave.	Birmingham
Link, Amanda	Huntsville Hospital, Inc.	Huntsville
Long, Mrs. Elsie Owens	Grant Mill Road	Birmingham
Maenner, Rose E.	59 Le Moyne Place	Mobile
McClelland, Zadie Lou	Garner Hospital	Anniston
Nelson, Thelma	Hillman Hospital	Birmingham
O'Curran, Irene E.	Hillman Hospital	Birmingham
O'Dell, Mrs. Mary J.	9 Winthrop Avenue	Birmingham
Parks, Mary Blande	Druid City Hospital	Tuscaloosa
Patterson, Dorothy D.	Jefferson Hospital	Birmingham
Philen, Della Iva	2163 Highland Ave.	Birmingham
Rice, Verna M.	2060 St. Stephens Road	Mobile
Rushing, Evelyn Prock**	Highland Baptist Hospital	Birmingham
Sister M. Paulette Foley	Holy Name of Jesus Hospital	Gadsden
Traber, Anna	2020 South 11th St.	Birmingham
Waldhous, Edith A.	Jefferson Hospital	Birmingham
Wilson, Bess	King Memorial Hospital	Selma

ARIZONA

Christian, Marion McBride	Cochise County Hospital	Douglas
Dearing, Lennie B.	Box 84	Flagstaff
Ferguson, Geraldine V.	Station Hosp., Army Air Base	Tucson
Kelley, Mildred Regina	Navajo Medical Center	Fort Defiance
Laurie, Mrs. Inez H.		Morenci
Maire, Frances H.	907 Nat'l Valley Bank Bldg.	Tucson
Sprecher, Esther M.	827 E. 2nd St.	Tucson
Thomas, Alice M.	215 E. Indianola	Phoenix

ARKANSAS

Atwood, Eva**	Box 330	Fort Smith
Chitwood, Louise	St. Edward's Hospital	Fort Smith
Cox, Merle	1026 Donaghey Bldg.	Little Rock
Davis, Mrs. Olive	1623 N. Harrison	Little Rock

* President State Association ** Secretary State Association *** Associate member

Eldred, Ruth	Sparks Memorial Hospital	Fort Smith
English, Thelma H.	Walls Hospital	Blytheville
Gaffeney, Mrs. Lucy B.		Forest City
Green, Alice	Wakenight Sanitarium	Searcy
Holmdel, Irma J.	Camp Robinson, Nurses' Quarters	Little Rock
Howard, Claudia E.	1427 Poplar St.	North Little Rock
Junkin, Mrs. Martha H.	Cooper Clinic	Fort Smith
Maysarros, Ann	Army and Navy, Gen. Hos.,	Hot Springs
Mehearg, Ila R.	St. Vincent's Infirmary	Little Rock
Myren, Gertrude E.	Univ. of Arkansas Hospital	Little Rock
Petty, Blanche G.	1863 Chester St.	Little Rock
Phillips, Mary Ellen	St. Mary's Hospital	Russellville
Raper, Edith W.	Trinity Hospital	Little Rock
Rausch, Inez R.	Univ. of Arkansas Hospital	Little Rock
Reynolds, Catherine	Sparks Memorial Hospital	Fort Smith
Summers, Mrs. Mary D.	Julia Chester Hospital	Hope
Tate, Mrs. Thelma R.	St. Louis Southw. Ry. Hosp.	Texarkana
Thomson, Jessie M.	5200 Edgewood Drive	Little Rock
Wakenight, Ellen G.	Wakenight Sanitarium	Searcy

CALIFORNIA

Andersen, Emmeline	4023 H St.	Sacramento
Anderson, Vera M.	390 Central Ave.	Oakland
Arent, Madeleine	390 Central Ave.	Oakland
Armitage, Irene R.	Paradise Valley San. and Hosp.	National City
Bagley, Mrs. Lettie East	331 S. School St.	Grass Valley
Barbee, Mrs. Genevieve	1318 Pine St.	Martinez
Barker, Betty	1400 Fell St.	San Francisco
Bartron, Kathryn	1167 Bush St.	San Francisco
Bates, Alta Alice	3000 Regent St.	Berkeley
Berry, Comfort A.	Presidio of Monterey	Monterey
Bichel, Martha	Franklin Hospital	San Francisco
Bishop, Mrs. Anna K.	75 Dolores St.	San Francisco
Bolton, Gladys M.	972 Bush St.	San Francisco
Brown, Mildred I.	416 Hawthorne Ave.	Oakland
Bryson, Adelyne	Mercy Hospital	Sacramento
Bulin, Emma J.	1537 Jackson St.	Oakland
Butler, Teresa	234 E. H St.	Benicia
Casey, Veronica	2609 — 22nd St.	San Francisco
Cauthorn, Mrs. Mabel P.*	318 Elm St.	San Mateo
Chartier, Jean	1994 Fell St.	San Francisco
Clark, Mrs. Bertha M.	837 — 450 Sutter St.	San Francisco
Clutton, Evangeline M.	426 — 29th St.	Oakland
Conlon, Mrs. Louise M.	Monterey Hospital	Monterey
Costa, Rosa	Sonora Hospital	Sonora
Culver, Edith	Sutter Maternity Hospital	Sacramento
Curtis, Adeline	117 No. Claudina St.	Anaheim
Daulton, Adelyn	315 Westgate Ave.	San Francisco
Deering, Bessie G.	Sutter Hospital	Sacramento
Diebold, Ruth	SanJoaquin Gen. Hosp., French Camp,	Stockton
Donley, Helene	1255 Hamilton Ave.	Palo Alto
Doran, Irene	Franklin Hospital	San Francisco
Doster, Mrs. Ella R. C.	Box 334	Yuba City
Duncan, Cleo	2648 E. 14th St.	Oakland
Edwards, Mrs. Anna K.	1309 Redondo Blvd.	Los Angeles
Eilertson, Elanda J.	1908 — 46th St.	Sacramento
Ellis, Mrs. Vyevene	1250 Bush St.	San Francisco
Fex, Mary Agatha	3726 Clinton Ave.	San Diego
Gibson, Mrs. Bessie C.***	Box 295	Carmel
Gibson, Frances	Samuel Merrit Hospital	Oakland

* President State Association ** Secretary State Association *** Associate member

Gorman, Mrs. Ada T.	801 — 39th Ave.	San Francisco
Goulet, Minnie	7707 — 1st Ave., N.W.	Seattle, Wash.
Graham, Mrs. Kath. H.	1870 Washington St.	San Francisco
Grimes, Flora A.	2931 — H St.	Sacramento
Guptill, Martha M.	3027 Telegraph Ave.	Oakland
Hansing, Bertha V.	Samuel Merritt Hospital	Oakland
Hanson, Mrs. Mell J.	Hahnemann Hospital	San Francisco
Hawk, Eleanor R.	416 Hawthorne Ave.	Oakland
Hebert, Marie H.	Dameron Hospital	Stockton
Hixson, Ulma	226 — 25th Ave.	San Mateo
Hoover, Mrs. Zola P.	Route No. 7—Box 3434	Sacramento
Hoyt, Margaret L.	St. Helena Sanitarium	Napa County
Hubbard, Ursula	St. Francis Hospital	San Francisco
Huntimer, W. Serena	500 Stanyan St.	San Francisco
Hurley, Frances C.	3237 — 16th St.	San Francisco
Inghram, Mrs. Elsie L.	341 Acacia Ave.	San Bruno
Jevne, Mrs. Sophie	6331 Hollywood Blvd.	Hollywood
Jones, Edith H.	952 Sutter St.	San Francisco
Jons, Elizabeth S.	2160 Fell St.	San Francisco
Jurasch, Helen J.	Station Hosp., Camp Haan	Riverside
Keenan, Katherine	40 Shrader St.	San Francisco
Kelly, Josephine B.	San Joaquin Gen'l Hospital	Stockton
Kelley, Pansy Mae	St. Francis Hospital	Santa Barbara
Kemp, Ada I.	Franklin Hospital	San Francisco
Kempers, Norma C.	626 S. Orange St.	Orange
Krekeler, Mrs. Irene F.***	737 Rodney Drive	San Leandro
Lagan, Mrs. Marian L.	5 Prado St.	San Francisco
Landis, Mrs. Edna S.	Chico Hospital	Chico
LaRocque, Dorothy	St. Francis Hosp.	Santa Barbara
Lofstedt, Anna Regina	578 — 34th St.	Oakland
Lutz, Elizabeth A.	726 — 4th St.	Marysville
Mahoney, Alice I.	3075 Harrington Ave.	Los Angeles
Malamphy, May	2068 Grove St.	San Francisco
Mathews, Margaret May	3131 Lincoln Way	San Francisco
Mayer, Mrs. Margott	Edgehill Apts. 14, 4017 W. 28th	Los Angeles
Morgan, Mrs. Gay***	807 — 39th Ave.	San Francisco
Mraz, Kathryn A.	3932 Eye St.	Sacramento
McCoppin, Margaret	418 Coloma Way	Sacramento
New, Margaret Opal	San Joaquin Gen. Hos., French Camp,	Stockton
O'Neil, May A.	77 Herman St.	San Francisco
Pence, Mada	716 — 3rd St.	Woodland
Peters, Lillian L.	1202 Hampshire St.	San Francisco
Peterson, Edith L.	740½ Manhattan Pl., South	Los Angeles
Piercy, Mrs. Margaretta F.	1229 York St.	San Francisco
Pray, Mrs. Jean H.	426 — 29th St.	Oakland
Price, Mrs. Laura de Ette	Box 73, Sanitarium	Napa County
Pringle, Mrs. Gertrude N.	65 Buena Vista Ave.	San Francisco
Quarles, Mrs. Myra B.	5105 Dover St.	Oakland
Roberts, Mrs. Mary Alta	5361 Trask St.	Oakland
Roberts, Mrs. Mildred	Camp Grobel	Standard
Rogers, Margaret C.	Enloe Hospital	Chico
Rowland, Mrs. Mae	1360 Park St.	Alameda
Rudel, Viola	1065 Bush St.	San Francisco
Ruse, Mrs. Lala R.	130 E. Olive St.	San Bernardino
Russell, Helena V.	99 Divisadero St.	San Francisco
Sister M. Borgia Gabrys	St. Joseph's Hospital	San Francisco
Sister M. O. Wiederkehr	St. Francis Hospital	Santa Barbara
Sister M. R. Wiederkehr	St. Joseph's Hospital	San Francisco
Schofield, Mrs. Helen K.***	449 Vassar Ave.	Berkeley
Schreiber, Olga E.	Woodland Clinic	Woodland

* President State Association ** Secretary State Association *** Associate member

Schultz, Adella Ida	518 — 44th St.	Oakland
Schwarz, Mrs. Eliz. H.	2626 — 35th Ave.	San Francisco
Seroy, Jeannette M.	422 E. Chestnut St.	Stockton
Shaw, Jean	Cottage Hospital	Santa Barbara
Shockites, Helen A.	Woodland Clinic	Woodland
Shorrey, Mrs. Margaret M.	St. Francis Hospital	San Francisco
Singleton, Adele P.	330 Kimble St.	Modesto
Skinner, Mrs. Mary Grace	Samuel Merritt Hospital	Oakland
Slattendale, Julo A.	Alameda Hospital	Alameda
Smith, Mrs. Louise A.	611 Galer St.	Glendale
Smith, Vieve L.	U. S. Marine Hospital	San Francisco
Snail, Mrs. Alice E.	P. O. Box 549	Sonora
Snodgrass, Mrs. Nan E.**	829 Leavenworth St.	San Francisco
Sogaard, Gertrude	Woodland Clinic	Woodland
Spencer, Esther Jane	450 Sutter St., No. 2110	San Francisco
Stevenson, Mrs. Mary J. R.	1280 Grove St.	San Francisco
Stone, Elva	2648 E. 14th St.	Oakland
Tennyson, Mrs. Nora S.	1517 W. 4th St.	Los Angeles
Thomas, Clara Behling	Colusa Memorial Hospital	Colusa
Timura, Mrs. Myrna L.	122 W. Pueblo St.	Santa Barbara
Torres, Mrs. Beatrice***	P. O. Box 136	Monterey
Tynan, Gertrude L.	Route No. 1—Box 292	Manteca
Vortman, Helen A.	403 — 28th St.	Sacramento
Walsh, Blanche L.	390 Central Ave.	Oakland
Ward, Mrs. Eloise S.	2612 Front St.	San Diego
Watkins, Kathryn	Samuel Merritt Hospital	Oakland
Wilkinson, Irma	50 Ulloa St.	San Francisco
Willey, Alice V.	General Hospital	Santa Barbara
Wilson, Eva M.	5804 Fleming Ave.	Oakland
Winkjer, Olga	Kern County Hospital	Kern County
Winter, Mrs. Cecelia M.	2325 Castillo St.	Santa Barbara
Wright, Ruth	3932 Eye St.	Sacramento

COLORADO

Allen, Mrs. Louise Bowden	1212 Cherry St.	Denver
Carpenter, Mrs. May M.**	2370 Ash St.	Denver
Colvin, Thelma V.	605 S. College Ave.	Fort Collins
Courtney, Helen M.	Red Cross Hospital	Oak Creek
Currie, Ethel F.*	Presbyterian Hospital	Denver
Derwae, Lillian I.	Sears Hotel	Denver
Hoyt, Gladys	1730 Williams St.	Denver
Kramer, Margaret L.	Corwin Hospital	Pueblo
MacFarlane, Mrs. Louise E.	Parkview Hospital	Pueblo
Moon, Mrs. Henrietta M.	Presbyterian Hospital	Denver
Murdock, G. Eugenia	2640 W. 32nd Ave.	Denver
Murray, Virginia	113 W. Bayard	Denver
Sister M. Adele Simons	St. Anthony's Hospital	Denver
Sister Alphonse Liguori	St. Mary Hospital	Pueblo
Sister M. Benedicta Frisz	St. Anthony's Hospital	Denver
Sister M. Luitgard	Thomas More Hospital	Canon City
Sister Rachel Rausch	St. Joseph's Hospital	Denver
Scheirer, Eleanor C.	Mercy Hospital	Denver
Stevens, Mrs. Ann	4040 E. 17th	Denver
Stuart, Linda M.	Corwin Hospital	Pueblo
Templeton, Jean E.	1630 Fillmore St.	Denver
Tubbs, Helen M.	2906 E. 17th Ave.	Denver

CONNECTICUT

Allcock, Alice	Charlotte Hungerford Hospital	Torrington
Allison, Mary V.	Meriden Hospital	Meriden
Anderson, Marion L.	780 Howard St.	New Haven

* President State Association ** Secretary State Association *** Associate member

Bander, Edna M.	120 Dwight St.	New Haven
Biondi, Lola	Bristol Hospital	Bristol
Blake, Marguerite E.	Waterbury Hospital	Waterbury
Blaney, May V.	St. Francis Hospital	Hartford
Clarke, Lula A.	Litchfield County Hospital	Winsted
Coffee, Mrs. Agnes Cutcliff	Bridgeport Hospital	Bridgeport
Constandi, Constance F.	16 Winchester St.	Norwich
Davidson, Mary C.	Greenwich Hospital	Greenwich
Davis, Elizabeth F.	St. Vincent's Hospital	Bridgeport
Davis, Mrs. Sarah J.	Litchfield County Hospital	Winsted
Dunst, Elizabeth	St. Vincent Hospital	Bridgeport
Earley, Ruth A.	780 Howard Ave.	New Haven
Golding, Mildred I.	Lawrence & Mem'l Associated Hospital	New London
Hill, Nathalie	New Haven General Hospital	New Haven
Hunt, Alice M.	New Haven Hospital	New Haven
Hutchinson, Doris I.	Manchester Mem'l Hospital	Manchester
Jeter, Mrs. Margaret	396 Whitney Ave.	New Haven
Kelly, Ida B.	Danbury Hospital	Danbury
Kimball, Florence	Box 71	Stafford Springs
Kloss, Mrs. Alice N.***	Newfield Road	Torrington
Lorentzou, Ebba	Waterbury Hospital	Waterbury
Malloy, Muriel F.	Bridgeport Hospital	Bridgeport
Masson, Mrs. Julia F.	Charlotte Hungerford Hospital	Torrington
Nast-Hoff,Mrs.Karoline W.	127 Grove St.	Putnam
O'Donnell, Ann R.	370 Collins St.	Hartford
Prouty, Ethel L.	350 Ocean Ave.	New London
Rice, Lillian A.	Box 6C, c/o D. A. Rice	Oakdale
Rothacker, Emily M.	780 Howard Ave.	New Haven
Sopko, Theresa	Mt. Sinai Hospital	Hartford
Stover, Ethel	Bridgeport Hospital	Bridgeport
Tamm, Helene	40 Seminary St.	New Canaan
Vezina, Clara A.	Bridgeport Hospital	Bridgeport
Welling, Eula E.	Waterbury Hospital	Waterbury
Witmyre, Mrs. Mildred W.	Bristol Hospital	Bristol

DELAWARE

Calvin, Ella M.	123 Ogle Ave.	Wilmington
Clasen, Caroline F.	Alfred I. Dupont Institute	Wilmington
Dickerson, Sara A.	Memorial Hospital	Milford
Sirna, Carmelita J.	Delaware Hospital	Wilmington
Hopper, Anna	St. Francis Hospital	Wilmington
McCool, M. Vivian	Wilmington General Hospital	Wilmington

DISTRICT OF COLUMBIA

Fox, Carrie Belle	2407—15th St., N.W.	Washington
Hawkinson, Caren	Naval Hospital	Washington
Quin, Beatrice M.	Walter Reed Hospital	Washington
Sr. M. Frances H. Bader	Georgetown University Hosp.	Washington
Short, Augusta Lee	Walter Reed Hospital	Washington
Witter, Kathryn G.	Walter Reed Hospital	Washington

FLORIDA

Barrett, Emily H.	1350 S.W. 13th St.	Miami
Bell, Fannie R.***	1104 E. DeSota St.	Pensacola
Bradbury, Mrs. Lenella J.	Orange General Hospital	Orlando
Brown, Mrs. Mary G.	1501 N.W. 2nd St.	Miami
Bryan, Mrs. Fentress	University Hospital	Coral Gables
Card, Jennie A.	1450 S.W. 7th Street	Miami
Caldwell, Mrs. Thelma	1921 Bay Road	Miami Beach
Compton, Mrs. Evon E.	1227 Greenwood Avenue	Orlando

* President State Association ** Secretary State Association *** Associate member

Costello, Josephine Zita	General Delivery	Miami Beach
Creelman, Margaret E.	Tampa Municipal Hospital	Tampa
Davis, Nellie G.	1426 — 9th Street N.	St. Petersburg
Dunning, Mrs. Ruth	Ft. Pierce Memorial Hosp.	Fort Pierce
Edwards, Ruth H.***		Zellwood
Ellis, Mrs. Ida Tedford	1210 Kuhl Avenue	Orlando
Gaylord, Mrs. Nathalie	St. Joseph's Hospital	Tampa
Grant, Iva S.	108 E. Central Ave.	Orlando
Green, Mrs. Almida M.	Jackson Memorial Hospital	Miami
Kelly, Agnes M.	Miami Beach Hospital	Miami Beach
Kendall, Mildred N.	608 Delaney Park Drive	Orlando
Kenney, Florence	St. Francis Hospital	Miami Beach
Kiefer, Anne Marie***	St. Luke's Hospital	Jacksonville
Kossack, Michalina A.	Dade County Hospital	Miami
Muren, Mrs. Frances R.	937 — 10th Street, N.	St. Petersburg
Noel, Mrs. Nelle	4590 — 4th Ave., N.	St. Petersburg
Phillipoff, Mrs. Mary J.**	Morton F. Plant Hospital	Clearwater
Regan, Jean C.	2524 Riverside	Jacksonville
Rhodes, Sue	Jackson Memorial Hospital	Miami
Schier, Alpha E.	Halifax District Hospital	Daytona Beach
Stroud, Mae	St. Vincent's Hospital	Jacksonville
Turner, Miss Bess	Jackson Memorial Hospital	Miami
Vance, Ina B.	Alachua County Hospital	Gainesville
Vanderwood, Lena	Tallahassee Air Base	Tallahassee
Watts, Marjorie Lee*	Hotel Plant	Plant City
Wilbanks, Mary C.	Pensacola Hospital	Pensacola

GEORGIA

Belcher, Lexie	Grady Hospital	Atlanta
Benteen, Anita Casanova	640 Forrest Rd.	Atlanta
Bresnahan, Mary C.	Central of Georgia Hospital	Savannah
Burdette, Agnes	Middle Georgia Hospital	Macon
Burns, Mrs. Estelle W.	Route 2	Decatur
Caraway, Billie B.	Georgia Baptist Hospital	Atlanta
Carnes, Rhea	Archbold Memorial Hospital	Thomasville
Carter, Hazel	Grady Hospital	Atlanta
Couch, Inez	Crawford W. Long Hospital	Atlanta
Dasher, Annie Laurie	202 E. Liberty St.	Savannah
Davis, Mrs. Effie	Patterson Hospital	Cuthbert
Davis, Mildred	144 Ponce de Leon Ave., N.E.	Atlanta
Egan, Mrs. Pierina G.	Vereen Memorial Hospital	Moultrie
Elliott, Cornelia	Grady Hospital	Atlanta
Gaissert, Julia Theresa	City Hospital	Columbus
Grubb, Mary A.	222 W. Poplar St.	Griffin
Hewes, Caroline K.	Macon Hospital	Macon
Hohenschutz, Caroline E.*	St. Joseph's Infirmary	Atlanta
Hollum, Annie Lee	Columbus City Hospital	Columbus
Ivey, Mrs. Norma	761 Virginia Ave., N.E.	Atlanta
Jones, E. Mae	Rawlings Sanitarium	Sandersville
King, Mrs. Mary McCord	220 W. Benson St.	Decatur
Knight, Ethel	Route 3	Macon
Lewis, Mary Frances	Emory University Hospital	Emory University
Mahoney, Clara Cecelia**	Crawford W. Long Hospital	Atlanta
McDonald, Mrs. Rosalie C.	Emory University Hospital	Emory University
McGinty, Mrs. Jean Greear	Elbert County Hospital,	Elberton
Nutt, Annie Loye	Strickland Mem'l Hospital	Griffin
Rapp, Mrs. Grace M.***	574 Collier Rd., N.W.	Atlanta
Ridley, Mrs. Rubye	1055 Rosewood Dr., N.E.	Atlanta
Rowzee, Theo Lanier	478 Peachtree St., N.E.	Atlanta
Sister M. Leandra	St. Mary's Hospital	Athens
Sister Mary Wilfreda	St. Mary's Hospital	Athens

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Stott, Mabel G.	U. S. Army Station Hospital	Fort McPherson
Tebo, Mrs. Ruth Davidson	Grady Hospital	Atlanta
Thompson, Ellie	Huey Hospital	Homerville
Vickers, Leola	Grady Hospital	Atlanta
Warman, Halo H.	Emory University Hospital	Emory University
Weaver, Mrs. Estelle	Georgia Baptist Hospital	Atlanta
Wells, Louise	Archbold Mem'l Hospital	Thomasville
White, Ruby Lucille	Bremen Hospital	Bremen
IDAHO		
Brown, Betty C.	Twin Falls County Hospital	Twin Falls
Butler, Selma J.	Box 129	Cottonwood
Fife, Marie C.	St. Joseph's Hospital	Lewiston
Henggeler, Martha M.	1002 N. 9th St.	Boise
Loncharich, Vernia R.	L. D. S. Hospital	Idaho Falls
Meyer, Marie	415 Jefferson St.	Boise
Nelson, Leona K.	General Hospital	Twin Falls
Sister M. Felicitas	St. Valentine's Hospital	Wendell
Sister Mary Helen	Our Lady of Consolation Hosp.	Cottonwood
Sister Joseph Arthur	Providence Hospital	Wallace
ILLINOIS		
Ahlson, M. Elynor	2875 W. 19th St.	Chicago
Allen, Lulu C.	Box 567	Evanston
Anderson, Ethel	5145 N. California Ave.	Chicago
Arns, Irene	2400 S. Dearborn St.	Chicago
Astling, Mrs. Minnie	R. R. 2	Sycamore
Aultz, Margaret A.	1536 N. Claremont	Chicago
Baines, Julia T.	1422 Sedgwick St.	Chicago
Baker, S. Gayle	2816 Ellis Ave.	Chicago
Baker, Mrs. Margorie**	2026 N. Burling	Chicago
Baumgartner, Lottie M.	West Suburban Hospital	Oak Park
Behrens, Mrs. Angeline M.	3813 Washington Blvd.	Chicago
Berg, Anna B.	Community Hospital	Geneva
Berghoff, Augusta	Alton Clinic	Alton
Bisdorf, Mrs. Marie E.	St. Joseph Hospital	Chicago
Brechtel, Ida		Lena
Breitenfeld, Mrs. Mary F.	4837 Addison St.	Chicago
Burke, Ursula M.	Evanston Hospital	Evanston
Cameron, Mrs. Mae B.	Ravenswood Hospital	Chicago
Carkhuff, Alice M.	Dixon Public Hospital	Dixon
Carrier, Mrs. Emma Maud	37 W. 14th Place	Chicago Heights
Clardy, Grace L.	Garfield Park Hospital	Chicago
Clough, Miss Corrine	Lutheran Deaconess Hospital	Chicago
Connolly, Ellen Margaret	Mercy Hospital	Chicago
Coupland, Margaret	Methodist Hospital	Peoria
Crane, Mrs. Katherine***	1912 E. Spruce St.	Springfield
Crowley, Machtildes C.	St. Francis Hospital	Peoria
Czyzycki, Catherine C.	6060 Drexel Ave.	Chicago
Day, Dorothy L.	Proctor Hospital	Peoria
Dickison, Hazel Marie	427 West Dickens St.	Chicago
Dickson, Mrs. Josephine	211 E. Broadway	Alton
Diediker, Matilda	3249 Potomac	Chicago
Diesel, Mrs. Agnes Nugent	4506 Magnolia Ave.	Chicago
Divan, Virginia	Grant Hospital	Chicago
Diveley, Mary V.	2030 N. Lowber St.	Decatur
Dorum, Thelma	St. Joseph Hospital	Chicago
Downham, Sarah Jane	Mother Cabrini Hospital	Chicago
Dulewich, Melvina V.	Holy Cross Hospital	Chicago
Duray, Mary	3234 Cortez St.	Chicago
Egleston, Ada M.	American Hospital	Chicago

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Elbert, Bernice	St. Mary's Hospital	Kankakee
Elyea, Marjorie L.		Wilmington
Ewing, Julia E.	Mattoon Polyclinic	Mattoon
Ford, Lauda S.	Augustana Hospital	Chicago
Fossum, Alma	5421 S. Morgan St.	Chicago
Ganzbuhl, Margaret	St. Anthony Hospital	Chicago
Garrity, Mary	Chicago Memorial Hospital	Chicago
Girkin, Nettie R.	Michael Reese Hospital	Chicago
Goodman, Mrs. Nellie C.	Decatur & Macon Co. Hospital	Decatur
Grebstad, Borghild	Evanston Hospital	Evanston
Grigsby, Lillian	St. Francis Hospital	Peoria
Haigwood, Hattie B.	U. S. Marine Hospital	Chicago
Hansen, Elizabeth T.	939 N. LaSalle St.	Chicago
Hard, Mabel D.	Jackson Park Hospital	Chicago
Harris, Bernadette A.	Loretto Hospital	Chicago
Harrison, Alice E.	West Suburban Hospital	Oak Park
Hazlett, Madonna	St. Francis Hospital	Peoria
Hellickson, Helga C.	Ravenswood Hospital	Chicago
Hemmig, Emilie	5421 W. Potomac St.	Chicago
Henry, Mrs. Pauline T.***	1121 Paulina St.	Chicago
Hickey, Mary C.	South Shore Hospital	Chicago
Hodges, Mildred	Alton Memorial Hospital	Alton
Hoffman, Gladys M.	Englewood Hospital	Chicago
Holmes, Edith H.	1044 N. Francisco Ave.	Chicago
Holt, Nina Mae	West Frankfort Union Hosp.	West Frankfort
Holwell, Mary M.	6915 S. Winchester	Chicago
Hoving, Anna S.	Roseland Community Hospital	Chicago
Hunt, Valeda V.	2750 W. 15th Place	Chicago
Johnson, Mrs. Anna B.***	1703 W. 103rd St.	Beverly Hills
Johnson, Mrs. Louise G.	5654 S. Wood St.	Chicago
Kaiser, Mrs. Elizabeth H.	Sherman Hospital	Elgin
Kasten, Mary C.	St. Anne's Hospital	Chicago
Kelly, Margaret W.	2548 Lakeview Ave.	Chicago
Kelley, Winifred	St. Luke's Hospital	Chicago
Koonce, Mrs. Norbeth B.	Marshall Browning Hospital	DuQuoin
Kraus, Paula	St. Francis Hospital	Blue Island
Kuhn, Pauline	Little Co. of Mary Hospital	Evergreen Park
Lazarski, Elizabeth	3409 Wilson Ave.	Chicago
Lebkuecher, Ethel M.	Decatur & Macon Co. Hosp.	Decatur
Lee, Agnes J.	1044 N. Francisco Ave.	Chicago
Leidel, Leeta	Wabash Hospital	Decatur
Lemmons, Geneva	850 Irving Park Blvd.	Chicago
Lenihan, Julia	645 S. Central Ave.	Chicago
Lewis, Hattie M.	St. John's Hospital	Springfield
Lindsey, Mrs. Grace V.		Huntsville
Lundahl, Mrs. Myrtle Parr	46 E. 110th Place	Chicago
McCall, Catherine	645 S. Central Ave.	Chicago
McDermott, Esther L.	Oak Park Hospital	Oak Park
McGraw, Mary R.	925 E. Prairie	Decatur
Mah, Margaret T.	3557 N. Southport Ave.	Chicago
Mahoney, Betty	St. Francis Hospital	Evanston
Maisnik, Shirley	St. Luke's Hospital	Chicago
Mandehr, Emma***	Alice Home Hospital	Lake Forest
Mann, Dorothy M.	7512 Colfax Ave.	Chicago
Marchioni, Linda M.	Victory Mem'l Hospital	Waukegan
Marsh, Margaret	Sherman Hospital	Elgin
Martin, Alice M.	915 Wilson Ave.	Chicago
Maruska, Regina H.	6060 S. Drexel Blvd.	Chicago
Metzke, Angeline	Silver Cross Hospital	Joliet
Milkereit, Mrs. Jessie M.	1101 State St.	Pekin
Miller, Hazel	Martha Washington Hospital	Chicago

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Modaff, Louise	Station Hospital	Fort Sheridan
Myers, Leone M.	Ravenswood Hospital	Chicago
Myrseth, Gudrun	Ingalls Memorial Hospital	Harvey
Myres, Wanda M.	5737 S. Wood St.	Chicago
Neuroth, Bertha	St. Elizabeth Hospital	Chicago
Newman, Blanche	Illinois Central Hospital	Chicago
Newton, Mary Margaret	Evanston Hospital	Evanston
Niccoli, Marie	St. Anne's Hospital	Chicago
Nichol, Mabel A.	530 W. Arlington Place	Chicago
Nordwall, Frieda	Swedish Covenant Hosp.	Chicago
Norred, Annice E.	Elmhurst Community Hospital	Elmhurst
O'Day, Exire	Ravenswood Hospital	Chicago
O'Leary, Helen E.	Passavant Hospital	Chicago
Olson, Anna M.	551 Grant Place	Chicago
Peterson, Hilma	Lake Co. Sanatorium	Waukegan
Petersen, Margaret	Englewood Hospital	Chicago
Pfauser, Christine H.	West Suburban Hospital	Oak Park
Phillips, M. Louise	Mt. Sinai Hospital	Chicago
Pippereit, Martha A.	Chicago Memorial Hospital	Chicago
Priester, Ann	West Suburban Hospital	Oak Park
Proudfit, Mrs. Harriet O.	Woodstock Hospital	Woodstock
Raphael, Marian A.	6319 S. California Ave.	Chicago
Reimer, Irma A.	536 Webster Ave.	Chicago
Riegel, Mrs. Bertha	302 Union St.	Joliet
Riegel, Esther	St. Luke's Hospital	Chicago
Render, Gertrude	Alton Memorial Hospital	Alton
Riley, Alice M.	427 Dickens Ave.	Chicago
Rinella, Edris P.	Illinois Central Hospital	Chicago
Robertson, Blanche A.	J. C. Hammond Hospital	Geneseo
Ronn, Anna M.	Passavant Hospital	Chicago
Roth, Jean	Mercy Hospital	Chicago
Ruggles, Esther	3900 Francisco Ave.	Evergreen Park
Sister Adolpha Ray	St. Anthony Hospital	Effingham
Sr. M. Ambrose Tamosaitis	2700 W. 69th St.	Chicago
Sister Andrea Weisgerber	St. Clara's Hospital	Lincoln
Sr. Angilb'a Schellenberger	St. Theresa Hospital	Waukegan
Sister M. Antonella Rauch	St. Joseph's Hospital	Joliet
Sr. M. Antonita Walloch	Our Lady of Victory Convent	Lemont
Sr. M. Bernadette Frech	St. Joseph's Hospital	Joliet
Sr. M. Borromea Supplicka	St. Francis Hospital	Peoria
Sr. M. Caroline Zirkel	St. Charles Hospital	Aurora
Sister M. Cleta Mehn	St. Elizabeth's Hospital	Granite City
Sr. M. Conrad'e Berwarth	St. Anthony's Hospital	Chicago
Sister Corene Adams	St. Vincent's Hospital	Taylorville
Sr. M. Cyprian Garszynska	1120 N. Leavitt St.	Chicago
Sr. M. Dobromila Janiszcak	1120 N. Leavitt St.	Chicago
Sister M. Dorothea	St. Anne's Hospital	Chicago
Sr. M. Gordiana Schiffer	St. Mary Hospital	LaSalle
Sr. M. Heribert Nowak	St. Francis Hospital	Freeport
Sr. M. Hortense Makstutis	St. Joseph's Hospital	Joliet
Sister Hyacinth	St. Vincent's Hospital	Taylorville
Sister M. Irma Graf	St. Elizabeth Hospital	Danville
Sr. M. Irmeng'd Cassellius	St. Joseph's Hospital	Joliet
Sister Jean Sudkamp	St. Elizabeth's Hospital	Belleville
Sister Johanelle Woityna	St. John's Hospital	Springfield
Sister Johanita Toennies	St. Vincent's Hospital	Taylorville
Sister M. Josephine	St. Mary's Hospital	Kankakee
Sister Jovita Schumann	St. Joseph's Hospital	Joliet
Sr. M. Kunigunda Flentz	St. Mary's Hospital	LaSalle
Sister Lamberta Gaida	St. John's Hospital	Springfield
Sister M. Leo Lang	Little Company of Mary Hosp.	Evergreen Park

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Sister M. Liliose	St. Mary's Hospital	Centralia
Sr. M. Lillian D'Autremont	Mercy Hospital	Chicago
Sr. M. Louise Odenthal	St. Joseph's Hospital	Joliet
Sister M. Loyola Panter	St. Francis Hospital	Freeport
Mother Magd. Wiedlocher***	R. F. D. No. 1	Springfield
Sister Margaret Nolin	St. Bernard's Hospital	Chicago
Sr. Marianna Cassellius	St. Charles Hospital	Aurora
Sr. Materna Boronowski	St. Francis Hospital	Litchfield
Sister M. Mildred Sauer	St. Joseph's Hospital	Elgin
Sister Odilard Sylvester	Lewis Mem'l Maternity Hosp.	Chicago
Sr. M. Prosperia Holtgrave	1431 N. Claremont Ave.	Chicago
Sr. M. Raymonda Hoefler	St. Anthony Hospital	Rockford
Sister Regula	St. John's Hospital	Springfield
Sister Rudolpha	St. John's Hospital	Springfield
Sister St. Bernard	6337 South Harvard Ave.	Chicago
Sr. Saint Margaret Mary	St. Bernard's Hospital	Chicago
Sr. M. Theresa Ettelbrick	St. Anthony de Padua Hosp.	Chicago
Sr. M. Theresita Rudolph	1431 N. Claremont Ave.	Chicago
Sister M. Viola	St. Francis Hospital	Freeport
Sr. M. Virginia Clare Regan	St. Joseph Hospital	Elgin
Sachs, Louise K.	Little Co. of Mary Hospital	Evergreen Park
Sanderson, Mrs. Sybil D.	329 E. Jefferson St.	Morris
Schobert, Helen R.	3245 S. Oak Park Ave.	Berwyn
Schram, Mrs. Opal	Washington Blvd. Hospital	Chicago
Schulz, Margarete	Elmhurst Community Hospital	Elmhurst
Schumacher, Mildred A.	Springfield Hospital	Springfield
Schwager, Mrs. Mary B.	518 N. 3rd Ave.	Maywood
Sed, Julia	Passavant Memorial Hospital	Chicago
Sidell, Ollie	355 Ridge Ave.	Evanston
Smith, Helen M.	Proctor Hospital	Peoria
Smith, Lucille H.	Swedish Covenant Hospital	Chicago
Sousa, Mrs. Anna M.	889 Nelson St.	Chicago
Speers, Helen M.	1138 N. Leavitt	Chicago
Stankiewicz, Helen M.	904 W. Adams St.	Chicago
Stenstrom, Naomi S.	South Shore Hospital	Chicago
Stephens, Mrs. Edna M.	351 St. Charles St.	Elgin
Stitzer, Dorothy E.	699 E. Deerpath Rd.	Lake Forest
Stoltz, Frieda L.	1517 S. Michigan	Chicago
Sulis, Gladys H.	Pekin Public Hospital	Pekin
Suttle, Ethel M.	St. Francis Hospital	Macomb
Taylor, Hazel	Henrotin Hospital	Chicago
Terry, Anna M.	West Suburban Hospital	Oak Park
Thom, Audrey R.	Copley Hospital	Aurora
Tunnell, Mrs. Gladys M.	Hinsdale Sanitarium	Hinsdale
Turner, Cora Belle	4523 N. Hamilton	Chicago
Vincent, Nelle G.*	Evanston Hospital	Evanston
Webster, Bonnie	Evanston Hospital	Evanston
Welinske, Matilde A.	631 N. Duncan Ave.	Arlington Heights
Whitney, Madge***	2561 Cullom Ave.	Oak Park
Whitford, Mrs. Mae L.	Collins Clinic	Peoria
Willenborg, Anna	18 E. Division St.	Chicago
Willenborg, Myrna	St. Luke's Hospital	Chicago
Willey, Mary J.	2666 E. 77th St.	Chicago
Wilson, Ruth	522 Belden Ave.	Chicago
Withrow, Emalie	Iroquois Hospital	Watseka
Woolsey, Mrs. Ora E.	200 Washington Ave.	Beardstown
Worthington, Joan M.	West Frankfort Hospital	West Frankfort
Wright, Ruth	University Hospital	Chicago
Zech, Elizabeth D.	Evanston Hospital	Evanston
Zenz, Bernadine M.	2537 Prairie Ave.	Chicago
Zwick, Mary A.	Evanston Hospital	Evanston

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INDIANA

Axel, Wilma Jo	540 Tyler St.	Gary
Bateman, Mary C.	Ft. Benjamin Harrison	Indianapolis
Benn, M. Pauline	St. Joseph's Hospital	Ft. Wayne
Burress, Mrs. H. Slater	706½ W. Main St.	Madison
Church, Mrs. Margaret P.	1016 Garden St.	Ft. Wayne
Deane, Thelma A.	130 W. Miami Ave.	Logansport
Efinger, Irene H.	319 W. Louisiana	Evansville
Fox, Mrs. Nellie M.***	408 N. Walnut St.	Kokomo
Guckian, Kathleen	St. Mary's Hospital	Evansville
Hane, Mrs. Ruth Hagen*	709 Kinnaird Ave.	Ft. Wayne
Kirschner, Regina R.	Marion General Hospital	Marion
Lange, Agnes M.**	326 Arcadia Court	Ft. Wayne
Myers, Mrs. Fern Like	R. R. 2	Wheatland
Prince, Susan C.	Ball Memorial Hospital	Muncie
Reitz, Helen M.	319 W. Louisiana St.	Evansville
Sister M. Viola	Sacred Heart Hospital	Garrett
Vonderau, Anna	2902 Fairfield Ave.	Ft. Wayne
Warnock, Inez	110 N. Cherry St.	Muncie

IOWA

Abraham, Sylvia C.**	Mercy Hospital	Council Bluffs
Barrett, Ella E.	St. Joseph Mercy Hospital	Mason City
Brabec, Mrs. Lucy M.	Mercy Hospital	Ft. Dodge
Brandt, Alma M.	Deaconess Hospital	Marshalltown
Brown, Martha	Jennie Edmundson Hospital	Council Bluffs
Cassidy, Mary C.	1875 Ambrose St.	Dubuque
Culp, Mary Arnold	Mercy Hospital	Des Moines
Dann, J. Irene	2906 Douglass St.	Sioux City
Ewer, Bertha A. L.	c/o Dr. S. E. Sibley	Sioux City
Felber, Marie	University Hospitals	Iowa City
Klein, Mrs. Grace	Memorial Hospital	Mt. Pleasant
Krogstad, Lorna E.		Osage
Kuchel, Wilma D.	Mercy Hospital	Council Bluffs
McGuire, Mary R.	Jennie Edmundson Hospital	Council Bluffs
Meyer, Marian L.	St. Joseph Mercy Hospital	Mason City
Parrish, Mrs. Mae Aileen	St. Joseph Mercy Hospital	Dubuque
Puth, Mary Grace	St. Joseph Mercy Hospital	Ft. Dodge
Robinson, Lulu V.	1319 N. Wapello	Ottumwa
Robson, Marie K.***	c/o Dr. Prince E. Sawyer	Sioux City
Sister M. Andriella Mateju	St. Anthony Hospital	Carroll
Sister M. Francella Dunton	Mercy Hospital	Burlington
Sister Margaret M. Kane	St. Joseph Mercy Hospital	Sioux City
Sr. Mary Pauline Hammes*	Mercy Hospital	Des Moines
Sister M. Natalie Senecal	St. Joseph's Mercy Hospital	Centerville
Schneider, Mary Agnes	1200 Main St.	Dubuque
Schwarting, Louise E.	Kenyon Road	Fort Dodge
Shanley, Gertrude Marie	2016 Iowa St.	Davenport
Smith, Ethel	517 High Ave., East	Oskaloosa
Sven, Myrtle E.	Lutheran Hospital	Ft. Dodge
Thompson, Helen M.	212 Tucker Bldg.	Clinton
Walton, Glenna Leatherman	953 — 7th Ave. East	Oskaloosa
White, Isabella W.	1219 — 5th Ave.	Des Moines

KANSAS

Baker, Viola H.*	Wesley Hospital	Wichita
Hammann, Zella**	1100 N. Grimes St.	McPherson
Mikkola, Zenia I.	Wesley Hospital	Wichita
Miller, Ella M.	327 Pope Avenue	Ft. Leavenworth
Murray, Cora B.	1107-07 — 6th St.	Dodge City

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O'Neill, Mrs. Elizabeth B.	P. O. Box 574	Dodge City
Paul, Mrs. Ethel S.	Wichita Hospital	Wichita
Peterson, Mrs. Lavida***		Miller
Risser, Ella	Bethel Deaconess Hospital	Newton
West, Wanda G.	111 W. 10th St.	Concordia
Wilson, Mrs. Blanche		Kingman

KENTUCKY

Bloom, Estelle	822 Heyburn Bldg.	Louisville
Bowyer, Mrs. E. W.***	c/o Mrs. W. S. Helm, Upper River Road	Louisville
Duncan, Mrs. Davida***		Columbia
Harover, Mrs. Mae W.	480 Riverview Terrace	Maysville
Haverkamp, Etta***	217 Van Voast Ave.	Bellevue
Highbaugh, Mrs. Eleanor B.	464 W. Broadway	Danville
Kissling, Bertha A.		Pikeville
Richards, Alice	Lexington Clinic	Lexington
Salt, Susan R.***	641 Park Ave.	Newport
Sirkle, Mrs. Lula M.		Meeksbury
Smiser, Mrs. Elizabeth S.	364 Transylvania Park	Lexington
Smith, Tommie	1110 Francis Bldg.	Louisville
Thurman, Elizabeth	Good Samaritan Hospital	Lexington

LOUISIANA

Bauer, Eva Ann	108 S. 4th St.	Monroe
Campeau, Beulah	3825 Louisiana Ave. Parkway	New Orleans
Coco, Mrs. Evelyn Hurff	2029 Benefit St.	New Orleans
Coleman, Elizabeth	8133 Spruce St.	New Orleans
Cross, Mary Elizabeth	P.O.Box 742, Cedar Grove Sta.	Shreveport
Dodd, Mrs. Viola C. R.	4029½ Palmyra St.	New Orleans
Duarte, Mrs. Antoinette A.	2719 Dante St.	New Orleans
Duncan, Dorothy S.	Highland Sanitarium	Shreveport
Engum, Eletta	1518 Fern St.	New Orleans
Epsky, Irene	Port Sulphur Hospital	Port Sulphur
Estelle, Daisy B.	3029 S. Carrollton Ave.	New Orleans
Foley, Mrs. Marie B.	3554 Lillian St.	Shreveport
Forsman, Rosalie M.	St. Francis Sanitarium	Monroe
Fusilier, Mary Bell**	Charity Hospital	New Orleans
Garcia, Maria Esperanza	1905 S. Carrollton Ave.	New Orleans
Gebs, Lillian M.	3511 Iberville St.	New Orleans
Graves, Mrs. Katie R.	Box 1941	Alexandria
Griffin, Mrs. Philomena P.	Route 1, Box 260	Alexandria
Grillet, Agnes	628 Fern St.	New Orleans
Grillet, Stella	628 Fern St.	New Orleans
Grissette, Maida M.	Bastrop General Hospital	Bastrop
Hanson, Mrs. Ethel C.	608 Cypress St.	West Monroe
Illg, Mrs. Lena Pellessier	327 So. Alexander St.	New Orleans
Ingersoll, Mrs. Mary E.	336 St. Patrick St.	New Orleans
Kling, Rowene*	632 Maison Blanche Bldg.	New Orleans
Koenig, Mary E.	Charity Hospital	New Orleans
Loe, Mrs. A.	Mansfield Sanatorium	Mansfield
Manent, Mrs. Jeanne R.	1124 Maison Blanche Bldg.	New Orleans
Marshall, Beulah Frances	2408 Pauline St.	New Orleans
Martinez, Mrs. Guillerma E.	225 Orion Blvd.	New Orleans
Myers, Esther	Charity Hospital	New Orleans
McMahon, Ellen Marie	2220 Constance St.	New Orleans
Nelson, Jessie V.	Baptist Hospital	Alexandria
Nock, Anne E.	1712 Valmont St.	New Orleans
O'Donnell, Mrs. Lillian	609 First East St.	Haynesville
Owen, Mrs. Sam	State Charity Hospital	Shreveport

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Price, Margaret A.	3518 Piedmont Dr.	New Orleans
Rausch, Mrs. Zadie R.	7 Fontainebleau Dr., Apt. H.	New Orleans
Sarles, Mrs. Dorothy K.***	Bentley Hotel	Alexandria
Sawyer, Ola E.	Minden Sanitarium	Minden
Scott, Mrs. Jane Carr	508 St. Peters St.	New Orleans
Scott, Mrs. Lida Anderson		Springhill
Sim, Mary	3004 Canal St.	New Orleans
Simoneaux, Mrs.Agnes M.B.	4612 Banks St.	New Orleans
Slater, Mrs. LaRene	609 Jackson Ave.	New Orleans
Smith, Mary Frances	6032 Garfield St.	New Orleans
Spear, Berniece	1330 Louisiana Ave.	New Orleans
Sterbens, Loretta M.	North Louisiana Sanitarium	Shreveport
Sullivan, Rosalie G.	415 Codifer Ave.	New Orleans
Tomeny, Betty	4921 Carondelet	New Orleans
Trimble, Ethel	Highland Sanitarium	Shreveport
Watford, Leslie	French Hospital	New Orleans
Weaver, Mertice	2847 St. Charles Ave.	New Orleans
Whitlow, Elizabeth	912 Pere Marquette Bldg.	New Orleans
Word, Mattie T.	1410 St. Andrew St.	New Orleans
Yancey, Mrs. Lydia	4029½ Palmyra St.	New Orleans
Ziegler, Mrs. Sara Paterson	514 Arlington Dr.	New Orleans

MAINE

Chaney, Mrs. Ardell M.	Children's Hospital	Portland
Craig, Ruth H.	Eastern Maine Gen'l Hospital	Bangor
Decker, Ann	Maine General Hospital	Portland
Erdle, Mrs. Mary R.***	1030 High St.	Bath
Greene, Gretchen V.	Eastern Maine Gen'l Hospital	Bangor
Hathaway, Belle	Box 183	Quoddy Village
Jacobsen, Mrs. Lona G.	Mt. Desert Island Hospital	Bar Harbor
Lalumiere, Jeanette	Mt. Desert Island Hospital	Bar Harbor
McLendon, Melba	Maine General Hospital	Portland
Moore, Greta	Eastern Maine Gen'l Hospital	Bangor
Mosher, Faye R.	Maine General Hospital	Portland
Whitney, Velma J.	Franklin County Mem'l Hosp.	Farmington

MARYLAND

Argus, Clara	Johns Hopkins Hospital	Baltimore
Berger, Olive L.	Johns Hopkins Hospital	Baltimore
Black, Mrs. Constance***	South Baltimore Gen'l Hospital	Baltimore
Blades, Caroline E.	Peninsula Gen'l Hospital	Salisbury
Carl, Dorothy M.***	4309 Chatham Road	Baltimore
DeLone, Florence A.	Emergency Hospital	Annapolis
Derr, Thelda E.	Delaware County Hospital	Delaware
Dolan, Helen M.	Johns Hopkins Hospital	Baltimore
Elliott, Ruth S.	University of Maryland	Baltimore
George, Mrs. Mildred B.	125 South Liberty	Cumberland
Hammond, Mrs. Alyce P.	P. O. Box 166	Centreville
Kane, Ethel M.	Mercy Hospital	Baltimore
Kavanagh, Mary T.	St. Joseph's Hospital	Baltimore
Knicely, Helena K.	Nurses' Quarters	Fort Geo. G. Meade
O'Brien, Mary J.	Univ. of Maryland Hospital	Baltimore
Owings, Frances V. N.	Johns Hopkins Hospital	Baltimore
Richtman, Olive	Johns Hopkins Hospital	Baltimore
Smith, Grace L.	515 N. Wolfe St.	Baltimore
Turtscher, Iva A.	Johns Hopkins Hospital	Baltimore
Tyler, Amelia L.	Peninsula Gen'l Hospital	Salisbury
White, M. Adelaide	Johns Hopkins Hospital	Baltimore
Zerhusen, Ann L.	6 East Read St.	Baltimore

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MASSACHUSETTS

Albright, Alta Minerva	St. Luke's Hospital	New Bedford
Blandford, Kate	Addison Gilbert Hospital	Gloucester
Bliss, Jessie M.	114 Whitwell St.	Quincy
Bond, Mrs. Helen L.***	116 Cottage St.	Easthampton
Boyer, Dorothy R.	Memorial Hospital	Worcester
Bralley, Belva B.	St. Luke's Hospital	New Bedford
Chisholm, Elsie W.	33 Orchard St.	Malden
Clough, Dorothy A.	House of Mercy Hospital	Pittsfield
Duxbury, Beulah	U. S. Naval Hospital	Chelsea
Garrity, Mary E.	Worcester City Hospital	Worcester
Gerrard, Gertrude M.	Peter Bent Brigham Hosp.	Boston
Hodgins, Agatha Hon. President A.A.N.A.		Chatham
Hume, Margaret E.	24 Walnut St.	Taunton
Kiebourne, Christine***	74 Wendell Ave.	Pittsfield
Lank, Betty E.**	300 Longwood Ave.	Boston
McCracken, Gladys	Mass. General Hospital	Boston
MacArthur, Mrs. Kath. E.	Free Hospital for Women	Brookline
MacRae, Elizabeth F.	Peter Bent Brigham Hospital	Boston
Morse, Mrs. Florence	208 High St.	Lowell
O'Donnell, Margaret M.	Pondville Hospital	Wrentham
Palmer, Patricia	Tobey Hospital	Wareham
Pupchick, Aksenia	Waltham Hospital	Waltham
Ramsey, Gladys E.	7 High Street	Whitinsville
Richardson, Virginia L.***	10 Bennett St.	Beverly
Ripley, Ann Valera	Salem Hospital	Salem
Sister M. Agnes	St. Vincent Hospital	Worcester
Sister M. Angelica	St. Vincent Hospital	Worcester
Sister M. Angeline	Mercy Hospital	Springfield
Sister Mary Ann	St. Luke's Hospital	Pittsfield
Sister M. Anthony	St. Vincent's Hospital	Worcester
Sister M. Armand	St. Vincent's Hospital	Worcester
Sister M. Assisi	St. Vincent's Hospital	Worcester
Sister M. Benedicta	St. Vincent's Hospital	Worcester
Sister Bernardina	St. Vincent's Hospital	Worcester
Sister M. Camilla	St. Luke's Hospital	Pittsfield
Sister M. of Divine Infant	Mercy Hospital	Springfield
Sister Mary Ellen	Mercy Hospital	Springfield
Sister M. Felicitas	Farren Mem'l Hospital	Montague City
Sister M. George	St. Vincent's Hospital	Worcester
Sister M. Ignatius	St. Vincent's Hospital	Worcester
Sister M. Incarnatus	Providence Mother House	Holyoke
Sister M. Laurentine	St. Luke's Hospital	Pittsfield
Sister M. L. Justinian	Mercy Hospital	Springfield
Sister M. Leocadia	Mercy Hospital	Springfield
Sister M. Loreto	St. Vincent's Hospital	Worcester
Sister M. Loyola	Mercy Hospital	Springfield
Sister M. Norbert	St. Vincent's Hospital	Worcester
Sister M. Philip Benizi	Providence Hospital	Holyoke
Sister M. Seraphia	St. Luke's Hospital	Pittsfield
Sister M. of Seven Dolors	St. Vincent's Hospital	Worcester
Sister M. Th. of Holy Child	Mercy Hospital	Springfield
Sister Mary of Victory	Providence Hospital	Holyoke
Seeberg, Mrs. Molly L.	U. S. Marine Hospital	Brighton
Smith, Marian	Newton Hospital	Newton Low. Falls
Stevens, Jean A.	Salem Hospital	Salem
Spaulding, Mrs. Elizabeth*	96 Washington St.	Brighton
Sutliff, Dorothy S.	Lowell General Hospital	Lowell
Sword, Esther	Shriner's Hospital	Springfield
Wilson, Mrs. Jeanie Lea	Pondville Hospital	Wrentham

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White, Marjorie A.	87 North St.	North Adams
Young, Mary Jane	Lowell General Hospital	Lowell
Zukas, Adele Mary Eleanor	33 Jefferson St.	Worcester

MICHIGAN

Allison, Clara E.	Community Hospital	Battle Creek
Aubrey, Anna Edith	3490 Lincoln, Apt. 204	Detroit
Baird, Lillian G.*	1308 Geddes Ave.	Ann Arbor
Barhite, Opal R.	General Hospital	Bay City
Barron, Loretta	Leila Y. Post Hospital	Battle Creek
Becker, Dora	Butterworth Hospital	Grand Rapids
Bell, Doris E.	Woman's Hospital	Detroit
Bilyea, Clara M.	1190 Seward Ave.	Detroit
Blakley, Sarah I.	Children's Hospital	Detroit
Boudreau, Marian E.	East Side General Hospital	Detroit
Bradbury, Nelle	Cottage Hospital	Grosse Pointe
Brown, Zoe Barbara	726 W. Washington Ave.	Jackson
Buford, Evelyn Y.	22915 Beech	Dearborn
Canty, A. Agnes	Woman's Hospital	Detroit
Coles, Margaret M.	12747 Wade	Detroit
Cote, Angela	1298 Fourth St.	Muskegon
Courtney, Mable E.	Grace Hospital	Detroit
Crawford, Althea M.	Blodgett Memorial Hospital	Grand Rapids
Crosby, Alice C.	1209 E. Michigan	Jackson
Davis, Mrs. Laura D.	Univ. of Michigan Hospital	Ann Arbor
Derks, Elizabeth	Mercy Hospital	Jackson
Deeks, Dorothy	3740 John R. Street	Detroit
Drobnek, Helen C.	Mercy Hospital	Benton Harbor
Dudewicz, Helen	2903 S. Jefferson Ave.	Saginaw
Dutton, Philomena	St. Joseph's Mercy Hospital	Pontiac
Eastby, Mrs. Ada B.	St. Mary's Hospital	Grand Rapids
Eckhart, Carmen A.	Redford Receiving Hospital	Redford
Esper, Agnes	Harper Hospital	Detroit
Fanning, Frances E.	Univ. of Michigan Hospital	Ann Arbor
Filter, Ruth M.	Hurley Hospital	Flint
Fleming, Bridget A.	216 Graham	Saginaw
Fletcher, Mary J.	Receiving Hospital	Detroit
French, Mrs. Bessie Mae	1801 Lapeer St.	Flint
Galbraith, A. Maude	212 Antisdel Pl., N. E.	Grand Rapids
Golnick, Meta	Hurley Hospital	Flint
Goode, Margaret T.	Herman Kiefer Hospital	Detroit
Greenway, Emma	Receiving Hospital	Detroit
Gribble, Mrs. Lenore E.	7368 Poe	Detroit
Hain, Alice L.	3245 Evangelical Deaconess Hospital	Detroit
Hall, Madeline	Clinton Memorial Hospital	St. Johns
Hannan, Marian M.	324 E. Bethune	Detroit
Hartley, Ora Mae	Beyer Memorial Hospital	Ypsilanti
Hazzard, Mrs. Mary	Gerber Hospital	Fremont
Heaston, Mary E.	702 Collegewood Ave.	Ypsilanti
Hendricks, Esther M.	Harper Hospital	Detroit
Hill, Harriet L.	Wyandotte General Hospital	Wyandotte
Hill, Maude	203 E. Franklin	Houghton
Hopkins, Mrs. Ida M.	8321 Grand River	Detroit
Howard, Mrs. Florence C.	432 E. Hancock	Detroit
Huebner, Emma M.	St. Luke's Hospital	Marquette
Huffman, Annie	Delray General Hospital	Delray
Ilgenfritz, Esther L.	St. Joseph's Mercy Hospital	Detroit
Kempton, Christine B.	Florence Crittenton Hospital	Detroit
Kinloch, Dorothy C.	Receiving Hospital	Detroit

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Koontz, Geneva C.	Hurley Hospital	Flint
Kucinskas, Adele E.	Florence Crittenton Hospital	Detroit
Krewson, Josephine E.	1585 Sixth St.	Muskegon
Lane, Maud	W. A. Foote Memorial Hosp.	Jackson
Lenze, Gladys L.	Florence Crittenton Hospital	Detroit
Leuzinger, Mrs. Dorothy	317 Glendale Ave.	Highland Park
Lewis, Shirley E.	Mercy Hospital	Benton Harbor
Long, Florence H.	Saginaw General Hospital	Saginaw
Longley, Ella Kent	Paulina Stearns Hospital	Ludington
McClintock, Mary E.	Mercy Hospital	Cadillac
McFarland, Ethelyn J.	Providence Hospital	Detroit
McGarrey, Mary E.	Mercy Hospital	Bay City
McKnight, Mary T.	Saginaw General Hospital	Saginaw
McNally, Hilda	Providence Hospital	Detroit
McWherter, Mrs. Alice S.	87 Poplar St.	Wyandotte
Madigan, Josephine	12094 Findlay	Detroit
Marion, Marion M.	Children's Hospital	Detroit
Martin, Mrs. Mary S.	218 Ferris	Ypsilanti
Mason, Esther R.	Blodgett Memorial Hospital	Grand Rapids
Masselink, Mrs. Lucy C.	Box 54	McBain
Meil, Esther J.	917 W. Euclid Ave.	Detroit
Meurin, Ruth O.	Harper Hospital	Detroit
Moir, Ethel M.	847 Lothrop	Detroit
Moran, Ann	St. Joseph's Mercy Hospital	Pontiac
Myers, Gertrude	15495 Manor	Detroit
Olzem, Catherine H.	13043 Camden Ave.	Detroit
Palmer, Mrs. Anna Mae	General Hospital	Highland Park
Peffers, Irene	2223 Lothrop Ave.	Detroit
Perry, Irene M.	Leila Y. Post Hospital	Goodrich
Perry, Mae A.	Goodrich Memorial Hospital	Battle Creek
Phelps, Persis M.	Butterworth Hospital	Grand Rapids
Read, Ruth B.	Univ. of Mich.Hosp.,Room 3311	Ann Arbor
Reynolds, Vera	St. Luke's Hospital	Marquette
Rice, Jessie L.	St. Mary's Hospital	Saginaw
Rusche, Vied M.	16530 Patton	Detroit
Sister M. Aquina Leenders	St. Francis Hospital	Escanaba
Sister M. Alacoque	St. Joseph's Hospital	Menominee
Sister M. Alfreda Venner	St. Mary's Hospital	Grand Rapids
Sr. Mary Assumpta Carr	St. Joseph's Hospital	Detroit
Sister Clara Behnke	Evangelical Deaconess Hosp.	Detroit
Sister M. Constance Steffes	Borgess Hospital	Kalamazoo
Sister M. Etheldrede Collins	St. Joseph's Mercy Hospital	Pontiac
Sister Eulalie McGivern	Mt. Carmel Mercy Hospital	Detroit
Sister Helen Marie Hughes	St. Joseph's Mercy Hospital	Ann Arbor
Sister M. Henrietta	St. Mary's Hospital	Marquette
Sister Mary James Rice	Mercy Hospital	Bay City
Sr. Mary Magdalene McGee	Mercy Hospital	Grayling
Sister Mary Stella Kearney	St. Mary's Hospital	Grand Rapids
Sr. Mary Sylvester Duffy	St. Joseph's Hospital	Mt. Clemens
Sister M. Theodora Kelling	Mercy Hospital	Grayling
Sahl, Margaret	Butterworth Hospital	Grand Rapids
Sajkowski, Michaeline F.	12085 St. Aubin St.	Detroit
Sams, Goldie P.	95 East Alexanderine	Detroit
Schoenbeck, Mrs. Bertha S.	Box 165	Plainwell
Sheehan, Elizabeth	Jennings Hospital	Detroit
Simco, Mrs. Josephine	Wyandotte General Hospital	Wyandotte
Singer, Barbara	8328 Townsend	Detroit
Smith, Mary B.	Receiving Hospital	Detroit
Snider, Ada	Grace Hospital	Detroit
Snyder, Hazel P.	Eloise Hospital	Eloise

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Steehler, Mrs. Elizabeth M.	State Hospital	Pontiac
Stefaniak, Anna B.	Eloise Hospital	Eloise
Sturgeon, Kathleen	Univ. of Michigan Hospital	Ann Arbor
Sullivan, Mary A.	1190 Seward	Detroit
Swindell, Mrs. Agnes M.	Bell Block	Benton Harbor
Thomas, Nathalia M.	Harper Hospital	Detroit
Tucker, Helen F.	Woman's Hospital	Detroit
Turnbull, Mrs. Laura C.	2535 Fifth St.	Wyandotte
Walker, Virginia S.	Wyandotte General Hospital	Wyandotte
Walton, Mrs. Glenna L.	Providence Hospital	Detroit
Watson, Ethel M.	Highland Park General Hosp.	Highland Park
Weick, Anna M.	U. S. Marine Hospital	Traverse City
Weigand, Marian	406 W. 11th St.	Traverse City
Wessinger, Ione***	7470 Byron	Detroit
Wilkinson, Vera S.	3270 Sophia St.	Wayne
Woodcock, Sarah A.	16860 Stansbury St.	Detroit
Wooliver, Sally A.	Woman's Hospital	Detroit
Yoakam, Myrtle L.***	7428 Kipling St.	Detroit
Zollman, Mrs. Alice	R. F. D. No. 2	Pontiac

MINNESOTA

Anderson, Palma A.*	Lutheran Deaconess Hospital	Minneapolis
Baer, Maple A.	St. John's Hospital	St. Paul
Baucum, Fern	St. Mary's Hospital	Minneapolis
Becker, Frieda	Ashton Memorial Hospital	Pipestone
Bergman, Ruth E.	Northwestern Hosptal	Minneapolis
Boyer, Alpha J.	Midway Hospital	St. Paul
Crotty, Rosella	Virginia Municipal Hospital	Virginia
Esler, Margaret R.	St. Joseph's Hospital	St. Paul
Eyk, Helen	Montevideo Hospital	Montevideo
Festler, Evelyn E.	Winona General Hospital	Winona
Gaertner, Mrs. Elizabeth	St. Mary's Hospital	Minneapolis
Ginther, Winifred	2725—17th Ave., So.	Minneapolis
Gregoire, Antoinette B.	St. Andrew's Hospital	Minneapolis
Gronvold, J. Marie	St. Joseph's Hospital	St. Paul
Hanner, Bonnie Bell	Eitel Hospital	Minneapolis
Haug, Camilla	Swedish Hospital	Minneapolis
Hutcheon, Mary Ethel	Winona General Hospital	Winona
Janovich, Mary C.	Miller Hospital	St. Paul
Johnson, Anna	St. Olaf's Hospital	Austin
Jurgensen, Katherine D.	Swedish Hospital	Minneapolis
Kallestad, Mrs. Virginia P.		Hutchinson
Kalstrom, Clarice S.	Milan Hospital	Milan
Kiely, Ruth G.	St. Barnabas Hospital	Minneapolis
Kippen, Janet	Asbury Hospital	Minneapolis
Layne, Myrtle M.	103—6th Ave., S. W.	Rochester
Lemke, Pearl F.	Unversity Hospital	Minneapolis
Lonergan, Ellen M.	Swedish Hospital	Minneapolis
Lundgaard, Mrs. Martha B.	3312 Clinton Ave.	Minneapolis
Lyngstad, Charlotte		Holstad
McDonald, Hazel	225—4th Ave., S. W.	Rochester
McQuillen, Florence	Mayo Clinic	Rochester
Matthews, Mildred M.	Abbott Hospital	Minneapolis
Mattson, Sophia H.	Union Hospital	New Ulm
Mechler Mary	St Mary's Hospital	Minneapolis
Mirick Grace	St. Barnabas Hospital	Minneapolis
Nelson, Mrs. Orilla H.	2628 Portland Ave.	Minneapolis
Nichols Christine	Swedish Hospital	Minneapolis
Niedermeyer, Hilda	103—6th Ave., S. W.	Rochester
Nordquist, Mrs. Anna S.	Abbott Hospital	Minneapolis

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Ormseth, Palma M.	Children's Hospital	St. Paul
Perkins, Florence E.	Miller Memorial Hospital	Duluth
Petersen, Anna C.	2101 Columbus Ave.	Minneapolis
Peterson, Dorothy L.	St. Luke's Hospital	Duluth
Peterson, Hazel J.**	Fairview Hospital	Minneapolis
Petrowske, Marie	Ancker Hospital	St. Paul
Porter, Gertrude H.	St. Luke's Hospital	St. Paul
Retrum, Sarah A.	Miller Hospital	St. Paul
Risse, Mayme I.	St. Luke's Hospital	Fergus Falls
Roadman, Bernice	Asbury Hospial	Minneapolis
Rodenberg, Esther	Gillette Hospital	St. Paul
Root, Mable G.	General Hospital	Minneapolis
Rosengren, Myrtle E.***	Shriner's Hospital	Minneapolis
Sister M. Julina Baron	St. Cloud Hospital	St. Cloud
Sister Mary Cornelia Lee	St. Francis Hospital	Breckenridge
Sister Mary Leonissa	St. Mary's Hospital	Minneapolis
Sister Theolinda Gottwald	St. Cloud Hospital	St. Cloud
Sister M. Loyola Nolan	St. Gabriel's Hospital	Little Falls
Sister Caroline Pepmeier	St. Lucas Deaconess Hospital	Fairbault
Sister Mary Philomena	St. Ansgar's Hospital	Moorhead
Sister M. Xavier Reeves	St. Vincent's Hospital	Crookston
Salmen, Mrs. Clara V.	St. Barnabas Hospital	Minneapolis
Sandberg, Elvy	St. Andrew's Hospital	Minneapolis
Schoen, Esther C.	619 Cedar St., So.	Owatonna
Toomey, Mrs. Martha M.	St. Mary's Hospital	Duluth
Van Dam, Esther	Abbott Hospital	Minneapolis
Vig, Gusta	Fairview Hospital	Minneapolis
Walthers, Ruth	General Hospital	Minneapolis
Westly, Grethe S.	Deaconess Hospital	Minneapolis
Whalen, Margaret Elinor	511 E. 3rd St.	Duluth
Wuest, Gertrude Catherine	1903 So. Ferry St.	Anoka

MISSISSIPPI

Adams, Dovie	Methodist Hospital	Hattiesburg
Angland, Margaret Mary	4546 — Ave.	Laurel
Bramlett, Mrs. Janie	Bramlett Hospital	Oxford
Collins, Susie May**	c/o Drs. Trudeau and O'Mara	Biloxi
Ellzey, Mrs. Hettye	Riley Hospital	Meridian
Easterling, Emma	Vicksburg Clinic	Vicksburg
Francis, Louise	Clarksdale Hospital	Clarksdale
Glass, Mrs. Ruth Perry	Methodist Hospital	Hattiesburg
Grantham, Mrs. Mary	Jackson County Hospital	Pascagoula
Hallett, Mrs. Cordelia H.	c/o Gamble Bros. & Archer	Greenville
Hester, Allene	Jackson County Hospital	Pascagoula
Hatchett, Mrs. Harriett	Fite Hospital	Columbus
Kling, Annie Kate***	Anderson Infirmary	Meridian
Lechner, Margaret	U. S. Veteran Hospital	Biloxi
Mason, Irene	Drs. Hirsch, Beck and Eubank	Greenville
Mins, Minnie	Greenwood Hospital	Greenwood
Maddox, Mrs. Marie Irby	Dr. E. E. Robinson, Jr.	Meridian
Parker, Gracie Belle	Gamble Bros. & Montgomery Clinic	Greenville
Platt, Jewell	Army Nurse Corps	Camp Shelby
Rosenbrough, Nell	City Hospital	Cleveland
Sanders, Mrs. Lurline McLeod	Box 19	Longview
Young, Effie	Pontotoc Clinic	Pontotoc
Wates, Mrs. Elizabeth N.*	3950 Council Circle	Jackson

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MISSOURI

Bauer, Mrs. M. H.***	3316 Carson Road	St. Louis
Breitweiser, Ineze	Missouri Pacific Hospital	St. Louis
Buenger, Viola M.	1177 Tompkin St.	St. Charles
Cox, Ann	4405 W. Pine Blvd.	St. Louis
Craddock, Alice	Christian Hospital	St. Louis
Davis, Lola S.	St. Mary's Hospital	Jefferson City
Dunbar, Elizabeth R.	Barnes Hospital	St. Louis
Eddy, Kathryn M.	Barnes Hospital	St. Louis
Gay, Reva	5512 Delmar	St. Louis
Gettinger, Anna L.	City Hospital	St. Louis
Glenn, Mrs. Tommie P.	Deaconess Hospital	St. Louis
Gronewald, Alice H.**	Barnes Hospital	St. Louis
Grupp, Doris M.	530 N. Union Blvd.	St. Louis
Hansbrough, Elizabeth	Station Hospital	Ft. Leonard Wood
Hartmeister, Meta M.	St. Louis County Hospital	St. Louis
Hile, Margaret Ann	St. Luke's Hospital	St. Louis
Hopkins, Myrtle G.	Jewish Hospital	St. Louis
Huff, Verda K.	612 N. Jefferson	Carrollton
Lamb, Helen	Barnes Hospital	St. Louis
Lindsey, Jessie	Barnes Hospital	St. Louis
MacKenzie, Patricia	City Hospital	St. Louis
Marcum, Edith	Jewish Hospital	St. Louis
Myers, Mrs. Aubrey	5452 Loughborough Ave.	St. Louis
Nelson, Lucille C.	825 Charles St.	St. Joseph
Newman, Mrs. Beatrice M.	75 Lindworth Pl., City of Ladue	St. Louis County
Noon, Regina M.*	Barnes Hospital	St. Louis
Pettit, Alice H.	Box 55	Kansas City
Sister M. Canisius Fahey	St. John's Hospital	St. Louis
Sister Cyrilla Wellman	St. Joseph's Hospital	Boonville
Sister Frieda L. Eckoff	6150 Oakland Ave.	St. Louis
Sister Meinulpha	St. Frances Hospital	Washington
Sister Theresa Kettelhut	Deaconess Hospital	St. Louis
Scherer, Pearl	Deaconess Hospital	St. Louis
Sieg, Hattie C.	DePaul Hospital	St. Louis
Slasor, Zelle	1400 Professional Bldg.	Kansas City
Spleth, Frieda W.	Missouri Baptist Hospital	St. Louis
Stitt, Sybil G.	4411 N. Newstead	St. Louis
Thayer, Ruth A.	City Hospital	St. Louis
Waltke, Mrs. Marie***	Park Plaza Hotel	St. Louis
Zumwalt, Mrs. Wilma G.	15. W. Broadway	Columbia

MONTANA

Bothell, Gladys M.	Sheridan Mem'l Hospital	Plentywood
Diefenbaugh, Lela M.	Kennedy Deaconess Hospital	Havre
Gallup, Sadie M.	Box 262	Red Lodge
Henne, Bessie M.	Deaconess Hospital	Billings
Leonard, Maxine M.	Columbus Hospital	Great Falls
McCarthy, Mrs. Marg. M.	108 Avenue E	Billings
Nelson, Helen D.	307 E. Main St.	Missoula
Peterson, Bertha E.	W. P. B. A. Hospital	Glendive
Reed, Loree J.	14. W. Lamone St.	Bozeman
Ross, Beulah	614 North 32nd St.	Billings
Sister Agnes Dooney	St. Patrick's Hospital	Missoula
Sister M. Azilda	St. Joseph Hospital	Lewistown
Mother Belina Poetz	St. Mary Hospital	Conrad
Sister Mary Charles***	Holy Rosary Hospital	Miles City
Sister Eugene de Tivoli	St. Patrick Hospital	Missoula
Sister Mary Fanahan***	Holy Rosary Hospital	Miles City
Sister M. Garina Storck	St. Mary Hospital	Conrad

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Sister M. Helen Dugrenier	Columbus Hospital	Great Falls
Sister M. Lanfrida Becker	St. Mary Hospital	Conrad
Sr. Margaret Mary Horan	920—4th Ave., N.	Great Falls
Sister Mary Matilda***	Holy Rosary Hospital	Miles City
Sr.Peter of Alcantara Adam	Columbus Hospital	Great Falls
Sister M. Richard	Holy Rosary Hospital	Miles City
Sister M. Theophana	St. Joseph Hospital	Lewistown
Sister M. Vericunda	Sacred Heart Hospital	Havre
Sister Victor	St. Patrick Hospital	Missoula
Scott, Mrs. Dick	Billings Deaconess Hospital	Billings
Smith, Dorothy M.	Montana Deaconess Hospital	Great Falls
Walsh, Helen D.	Daly Hospital	Hamilton
Winter, Mrs. Olive E.***	Box 210	Miles City

NEBRASKA

Alblinger, Eugenia L.	St. Elizabeth Hospital	Lincoln
Barron, Monee	W. Nebraska Methodist Hosp.	Scottsbluff
Brich, Marcella	St. Catherine Hospital	Omaha
Brogan, Ellen	St. Elizabeth Hospital	Lincoln
Bulin, Ada	Methodist Episcopal Hospital	Scottsbluff
Christensen, Ruby	Bryan Memorial Hospital	Lincoln
Christianson, Augusta V.	The Mary Lanning Mem'l Hos.	Hastings
Dorsey, Josephine J.	Nicholas Senn Hospital	Omaha
Dugan, Elizabeth I.	2464 Harney St.	Omaha
Ganzel, Charlotte A.	Nicholas Senn Hospital	Omaha
Gulotta, Mrs. Wilhelmina*	1734 So. 17th St.	Lincoln
Hain, Agnes G.	Bishop Clarkson Mem'l Hosp.	Omaha
Jennings, Lucinda G.		Lexington
Kramer, Josephine	Box 58	Columbus
Miller, Lillian	Roche Hospital	Sidney
Nehring, Mrs. Laura V.	Orthopedic Hospital	Lincoln
Omig, Mrs. Ruth E.	3452 Larimore St.	Omaha
Owens, Mrs. Mabel R.	Immanuel Deaconess Hospital	Omaha
Sister Marie Anderson***	Immanuel Hospital	Omaha
Sister Mary Angeline	St. Joseph's Hospital	Alliance
Sister M. Asella	St. Elizabeth Hospital	Lincoln
Sister M. Claire Connelly	St. Joseph's Hospital	Alliance
Sister M. Theola Vetter***	St. Joseph's Hospital	Alliance
Sister M. Ursula Dixon	St. Mary Hospital	Nebraska City
Schaffer, Anna M.	Methodist Hospital	Omaha
Schrader, Lola M.	Lincoln General Hospital	Lincoln
Seni, Helen C.	St. Francis Hospital	Grand Island
Svoboda, Kathryn C.	Nicholas Senn Hospital	Omaha
Van Sweringen, Bertha	Grand Island Clinic	Grand Island
Woodgate, Mrs. Marie E.	109 W. 7th St.	North Platte
Young, Pauline**	Bryan Memorial Hospital	Lincoln

NEW HAMPSHIRE

Goense, Joan	Frisbie Memorial Hospital	Rochester
Pedersen, Carin H.	Portsmouth Gen'l Hospital	Portsmouth
Ryan, Ellen	Mary Hitchcock Mem'l Hosp.	Hanover
Schmanska, Katherine I.	Mary Hitchcock Mem'l Hosp.	Hanover
Thompson, Vera L.	Margaret Pillsbury Hospital	Concord

NEW JERSEY

Aberg, Harriet L.	Muhlenberg Hospital	Plainfield
Alburger, Mrs. Frances M.	St. James Hospital	Newark
Armstrong, Anna E.	201 Lyons Avenue	Newark
Ball, Mrs. Dorothy C.	157 N. Tenth Avenue	Highland Park
Boughton, Mrs. Nancy B.	759 High Street	Newark
Bryant, Laura D.	Cooper Hospital	Camden

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Calden, Mary P.	Hosp. & Home for Crippled Children	Newark
Cogswell, Marion C.***	Newton Hospital	Newton
Conkling, Cara	51 Curtis Place	Maplewood
Cook, Maude M.	Presbyterian Hospital	Newark
Dangler, Jessie M.	Dr. E. C. Hazard Hospital	Long Branch
de Felice, Josephine	Beth Israel Hospital	Newark
Dwyer, Elizabeth A.	All Souls Hospital	Morristown
Eagan, Mrs. Ora T.***	1274 Barbara Avenue	Union
Farmer, Mrs. Elizabeth***	7 Blake Avenue	Cranford
Fuller, Mrs. Nancy Ingram	Beverly Road	Burlington
Gardner, Mrs. Anna M.	708 High Street	Newark
Gaumer, Mrs. Miriam S.	422 First Street	Lakewood
Glenn, Martha K.	St. Peter Hospital	New Brunswick
Glick, Marie	Cooper Hospital	Camden
Graf, Nellie P.	Monmouth General Hospital	Long Branch
Hale, Mrs. Florence V. M.	Saint Peter Hospital	New Brunswick
Holcombe, Mrs. Emily M.	15 Washington Street	Newark
Horesta, Mrs. Elizabeth	Overlook Hospital	Summit
Horne, M. Catherine	929 Revere Avenue	Trenton
Horwitt, Bebe M.	Saint Peter Hospital	New Brunswick
Horwitz, Mrs. Elizabeth R.	254 Morse Street	Camden
Johnson, Mrs. Ruth K.	387 East Main Street	Somerville
Jones, Kathryn E.	27 South Ninth Street	Newark
Kalnoske, Ada C.	New Jersey State Hospital	Marlboro
Kayhart, Mrs. C. W.***	56 Woodside Avenue	Newton
Lowery, Martha E.	St. Barnabas Hospital	Newark
Loyd, Belle	Overlook Hospital	Summit
Marren, Alma D.	St. Francis Hospital	Trenton
Maunsell, Wilma	201 Lyons Avenue	Newark
McGarry, Helen M.	Memorial Hospital	Morristown
McLaughlin, Eleanor	Newark Memorial Hospital	Newark
Mifflin, Mrs. Della L.*	Cooper Hospital	Camden
Mitchell, Mrs. Susan	270 Montclair Avenue	Newark
Morang, Elizabeth H.	St. Vincent Hospital	Montclair
Nash, Mrs. Ruth M.	Muhlenberg Hospital	Plainfield
O'Donnell, Nora T.	St. Elizabeth Hospital	Elizabeth
O'Neill, Anna T.	St. Barnabas Hospital	Newark
Patterson, Pearl C.	Dr. E. C. Hazard Hospital	Long Branch
Phander, Velma	Underwood Hospital	Woodbury
Powell, Jessie E.	Newcomb Hospital	Vineland
Rea, Pauline K.	General Hospital	Elizabeth
Reynolds, Harriet E.	Memorial Hospital	Morristown
Sheppa, Pauline A.	Atlantic City Hospital	Atlantic City
Sister M. Benildis Schumm	St. Francis Hospital	Trenton
Snyder, Myrta	Atlantic City Hospital	Atlantic City
Stone, Mae	Presbyterian Hospital	Newark
Strandberg, Mrs. Agnes P.	94 Washington Avenue	Carteret
Strom, Ruth E.	300 Carteret Place	Orange
Sutton, Alberta	Middlesex General Hospital	New Brunswick
Waters, Frances M.**	Cooper Hospital	Camden
Weaver, Gertrude M.	Princeton Hospital	Princeton
White, Mrs. Helen F.	Beth Israel Hospital	Newark
Winsor, Mrs. Phyllis G.	Presbyterian Hospital	Newark
Woram, Mrs. Leona D.	11 Pine Avenue	Long Branch

NEW MEXICO

Conner, Pauline C.	Clovis Memorial Hospital	Clovis
Davison, Marjory J.	Clovis Memorial Hospital	Clovis
Kuttler, Sallie D.	Box 1177	Roswell

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Murray, Edna M.	Tucumcari Gen'l Hospital	Tucumcari
Frost-Parsons,Bertha G.***		Shiprock
Sister M. Rose Demuth	St. Francis Hospital	Carlsbad
Williams, Mrs. Clara P.	105 S. Cedar	Albuquerque
NEW YORK		
Anderson, Mrs. Sally A.	210 East 64th Street	New York
Armstrong, Ethel	39 Auburn Place	Brooklyn
Arthur, Joan H.	Temporary Address Southsea, Hampshire	England
Barry, Margaret C.	St. Mary's Hospital	Rochester
Bartruff, Sara C.	Southampton Hospital	Southampton, L. I.
Bates, Gyda	Caledonian Hospital	Brooklyn
Bean, Verna E.	480 Herkimer Street	Brooklyn
Bentz, Rosemary F.	18 East 48th Street	New York
Bieber, Clara G.	141 West 109th Street	New York
Billard, Esther P.	Meadowbrook Hospital	Hempstead
Billmeyer, Hancie M.	Wyckoff Heights Hospital	Brooklyn
Blanchard, Hazel (Honorary Member N.Y.Ass'n)	2342 15th Street	Troy
Bordes, Suzanne T.	4401—34th Ave.	Astoria, L. I.
Buckley, Ann D.	Boulevard Hospital	Long Island City
Burch, Ethel C.	Columbus Hospital	New York
Burger, E. Dorothy***	Skidmore College	Saratoga Springs
Bush, Genevieve	Memorial Hospital	Catskill
Carruthers, Aletha H.***	White Plains Hospital	White Plains
Casabella, Mrs. Katherine	118 Fleetwood Avenue	Albany
Clarisse, Elsie M.	Highland Hospital	Rochester
Clode, Mrs. Mary	360 Adelphi Street	Brooklyn
Colleran, Emma A.	Ellis Hospital	Schenectady
Collins, Agnes G.	The New York Hospital	New York
Cook, Mildred	Coney Island Hospital	Brooklyn
Cooper, Muriel A.	Lutheran Hospital	Brooklyn
Craven, Helen K. (Life member Am. Ass'n)	Central Nurses' Residence	Welfare Island, New York
Danaher, May A.	1845 Becker Street	Schenectady
Danzeisen, Mrs. Estelle W.	Midtown Hospital	New York
Desmond, Mary	North Country Comm'ty Hosp.	Glen Cove, L. I.
Doar, Mary E.	30 Cottage Avenue	Mt. Vernon
Dobbie, Marie P.	63 North Hampton Street	Buffalo
Doherty, Rose Ann	Mary McClellan Hospital	Cambridge
Dolce, Mildred R.	496 Swan Street	Buffalo
Dolffs, Irmgard vonB.	Hosp. for Ruptured & Crippled	New York
Dougan, Janet B.	Morrisania Hospital	New York
Dougherty, Donna D.	Chas. S. Wilson Mem'l Hosp.	Johnson City
Duffield, Caroline I.	Hotel McAlpin	New York
Eberle, Mrs. Giuseppina	Coney Island Hospital	Brooklyn
Edwards, Mrs. Paul H.***	1240 Pacific Street	Brooklyn
Erickson, Margaret E.	260 Crittenden Boulevard	Rochester
Eveleth, Grayce S.	337 East 30th Street	New York
Fitzgerald, Sarah Louise	815 Seward Street	Rochester
Flanagan, Mrs. Helen G.***	44 Cortland Street	Norwich
Foley, Margaret C.	225 Hoosick St.	Troy
Foley, Virginia M	Strong Memorial Hospital	Rochester
Fowler, Mrs. Sophie K.	38 East 85th Street	New York
Foy, Cora Lee	Manhattan Eye, Ear, Nose and Throat Hospital	New York
Franke, Elsa E.	1484 Glenwood Boulevard	Schenectady
Gale, Mrs. Mary S.***	223 Maple Avenue	Riverhead, L. I.
Gallon, Martha	Coney Island Hospital	Brooklyn

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Gaupp, Roberta M.	Ellis Hospital	Schenectady
Geiss, Mrs. Helen M.	Strong Memorial Hospital	Rochester
Gilleran, Gertrude M.	Sta. B., Hudson River State Hospital	Poughkeepsie
Gilliland, Eddie Mae	Peck Memorial Hospital	Brooklyn
Glenz, Muriel M.	Minor Surgical Nurs'g Service	Hempstead, L. I.
Goff, Genevieve N.	Jamaica Hospital	Jamaica, L. I.
Gordon, Mabel	Taft Hotel	New York
Graham, Ada M.	141 West 109th Street	New York
Haffey, Mary R.	Jewish Hospital	Brooklyn
Haubennestel, Mrs. Ruth***	Vassar Brothers Hospital	Poughkeepsie
Headley, Helen P.	Vassar Brothers Hospital	Poughkeepsie
Healy, Mrs. Faith DeBaun	1940 E. Tremont Ave.	Parkchester, Bronx
Hendrickson, Grace L.	Meadowbrook Hospital	Hempstead, L. I.
Henneberger, Martha M.	Woman's Hospital	New York
Hess, Mrs. Frances*	Long Island College Hospital	Brooklyn
Hickman, Evelyn	The Brooklyn Hospital	Brooklyn
Hoge, Esther H.	700 West 168th Street	New York
Hughes, Grace G.	Woman's Hospital	New York
Jackson, Marguerite M.	Vassar Brothers Hospital	Poughkeepsie
Jenne, Mary A.	Jamaica Hospital	Jamaica, L. I.
Jennings, Gertrude M.	New Rochelle Hospital	New Rochelle
Johnston, Maud	360 Ovington Avenue	Brooklyn
Jones, Deborah	528 Warren Street	Albany
Kanter, Albina	235 Bryant Street	Buffalo
Keller, Bessie M.	Cumberland Hospital	Brooklyn
Ketchem, Emma A.	51 Mitchell Avenue	Binghamton
Kibbey, Mary Olive	Jewish Hosptial	Brooklyn
Kimball, Athalia M.	Post Graduate Hospital Reconstruction Unit 395 Central Park West	New York
Kirby, Mrs. Irene L.	Hosp. for Ruptured & Crippled	New York
Kline, Ethel C.	553 Warren Street	Hudson
Knitter, Mrs. Consuelo L.	Staten Island Hospital	Staten Island
Korinek, Boldiena A.	8930 Van Wyck Boulevard	Richmond Hill, L I.
Kramer, Florence M.	483 Delaware Avenue	Buffalo
Krieger, Mrs. Bessie L.	103 Hooker Avenue	Poughkeepsie
Lambert, Marcella F.	1567 Nostrand Avenue	Brooklyn
Lang, Veronica E.	St. Catherine's Hospital	Brooklyn
Lapinski, Pauline E.	Long Island College Hospital	Brooklyn
Lemke, Anna C.	Woman's Hospital	New York
Lewis, Mrs. Elizabeth M.	Alice Hyde Hospital	Malone
Lewis, Mary Lou	Ellis Hospital	Schenectady
Lewis, Rhoda	673 Locust Street	Mt. Vernon
Lipinski, Bernice	Strong Memorial Hospital	Rochester
Lisa, Mrs. Marie L. G.	4410 Cayuga Avenue	New York
Litzen, Catherine	1320 York Avenue	New York
Lynch, Eunice	34-02—153rd Street	Flushing, L. I.
Lynch, Regina G.	Morrisania Hospital	Bronx
MacIver, Kathryn M.	Bay Ridge Sanitarium	Brooklyn
MacMullen, Mrs. Pauline	Manhattan Eye, Ear, Nose and Throat Hospital	New York
MacQuarrie, Barbara A.	1919 Madison Avenue	New York
McCann, Susan	Greenpoint Hospital	Brooklyn
McCoy, Mrs. Charlotte	The New York Hospital	New York
McFadden, Dessie	1303 York Avenue	New York
McKay, Cora (Honorary Member N. Y. Ass'n)	Albany Hospital	Albany
McQuilton, Ida May	Nassau Hospital	Mineola, L. I.
Masler, Catherine A.	105 Carlton Avenue	Brooklyn

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Mavor, Mrs. Mae	New York Orthopedic Hosp.	New York
Mayfield, Lois	Kings County Hospital	Brooklyn
Meek, Mary A.	1255 Delaware Avenue	Buffalo
Minnick, Hilda I.	North Country Comm'ty Hosp.	Glen Cove, L. I.
Morrow, Dorothy M.	Highland Hospital	Rochester
Moss, Naomi S.	99 Vermont Avenue	Hempstead, L. I.
Moyer, Mrs. Louise D.	339 East 58th Street	New York
Mullin, Sara R	The New York Hospital	New York
Murphy, Anna D	Ellis Hospital	Schenectady
Neff, Lois Mae	300 Lenox Road	Brooklyn
Norris, Anna V.	United Hospital	Port Chester
O'Neill, Mrs. Veronica T.	314 Elizabeth Street	Ogdensburg
Patten, Helen L.	62 Chestnut Street	Cohoes
Paxson, Verda Ellen	Long Island College Hospital	Brooklyn
Peisher, Lillian J.	Newark State School	Newark
Penland, Anne	Presbyterian Hospital	New York
Perry, Mary Frances	309 East 49th Street	New York
Peskin, Edith M.	170 West 76th Street	New York
Peters, Mrs. Helen U.***	R. F. D.	Gowanda
Phillips, Frances K.	Hudson City Hospital	Hudson
Ponti, Katherine	U. S. Marine Hospital	Stapleton, S. I.
Power Mrs. Ethel H.	418 West 130th Street	New York
Prentice, Mildred V.	Bethany Deaconess Hospital	Brooklyn
Quinn, Mrs. Virginia P.	Israel Zion Hospital	Brooklyn
Rabinowitz, Frances	Staten Island Hospital	Tompkinsville, S. I.
Racette, Alice M.**	Ellis Hospital	Schenectady
Rausch, Sara	Nurses' Home, Marine Hosp.	Stapleton, S. I.
Rees, Madge	Box 95	Niskayuna, Albany Co.
Reichling, Dorothy A.	700 West 168th Street	New York
Reusch, Marion Edith	Post Graduate Hospital Reconstruction Unit 395 Central Park West	New York
Riebhoff, Grace H.	267 S. Ocean Avenue	Freeport, L. I.
Riefel, Helen S.	Highland Hospital	Rochester
Roach, Evelyn A.	325 East 77th Street	New York
Roberge, Jeanne	Cumberland Hospital	Brooklyn
Robinson, Hilda J.	53 Sound Avenue	Riverhead, L. I.
Rogge, Mrs. Anna Kline	260 Lenox Road	Brooklyn
Root, Dorothy J.	419 Winthrop Street	Brooklyn
Rupert, Cecile B.	Mather Memorial Hospital	Port Jefferson
Russell, Jessie G.	The New York Hospital	New York
Sister Mary Inez O'Mailia	Mercy Hospital	Buffalo
Sister Magda Marie	Queen of the Holy Rosary Conv.	Amityville, L. I.
Sr. Mary Bernetta Kenny	Mt. Mercy Hospital	Buffalo
Sister Mary De Sales	Mercy Hospital	Hempstead, L. I.
Sister Mary Nazarene	Mary Immaculate Hospital	Jamaica, L. I.
Sister Mary Noreen	Queen of the Holy Rosary Conv.	Amityville, L. I.
Sister St. Ann Murphy	St. Joseph's Hospital	Elmira
Sr. Mary St. Jos. Creighton	St. Joseph's Hospital	Elmira
Saks, Marion J.	5 East 98th Street	New York
Satterlee, Charlotte D.	Memorial Hospital	Albany
Saxton, Mabel G.	St. John's Riverside Hospital	Yonkers
Schmid, Carol	880 Lafayette Avenue	Buffalo
Schmidt, Lucy L.	Hospital for Joint Diseases	New York
Shekletski, Helen R.	Staten Island Hospital	Staten Island
Shellenberger, Frances V.	196 Washington Park	Brooklyn
Shoemaker, Jane E.	Morrisania Hospital	New York
Shupp, Miriam G.	Strong Memorial Hospital	Rochester
Smith, Alice C.	Prospect Heights Hospital	Brooklyn
Smith, Caroline B.		Pleasant Valley, Dutchess County

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Smith, Golda	300 Lenox Road	Brooklyn
Spear, Elizabeth	United Hospital	Port Chester
Spencer, Eva N.	City Hospital	Salamanca
Spongberg, Alice J.	Bay Ridge Sanitarium	Brooklyn
Steffen, Gertrude	Long Island College Hospital	Brooklyn
Stewart, Anna E.	Manhatten Eye, Ear, Nose and Throat Hospital	New York
Strayer, Mary C.	Memorial Hospital	New York
Stroobant, Marie Helen	Park Avenue Hospital	Rochester
Suhrhoff, Marion A.	Mary Immaculate Hospital	Jamaica, L. I.
Sullivan, Margaret F.	Strong Memorial Hospital	Rochester
Thomas, Anne Cosby	Strong Memorial Hospital	Rochester
Tippit, Clyde D.	200 West 15th Street	New York
Tobin, Florence G.	Brooklyn Hospital	Brooklyn
Tschudin, Marie	Vassar Brothers Hospital	Poughkeepsie
VanderBurgh, Geraldine	Highland Hospital	Rochester
VanGorden, Mrs. Alma G.	Long Island College Hospital	Brooklyn
Wagner, Mrs. Beulah D.	Flushing Hospital	Flushing, L. I.
Ward, Gladys	4362 Kissena Boulevard	Flushing, L. I.
Wark, Marion K.	145-46 159th Street	Jamaica, L. I.
Weaver, R. Edith	Hudson City Hospital	Hudson
Weisensee, Barbara	Minor Surgical Nurs'g Serv.	Hempstead, L. I.
Welker, Marianne H.	Yonkers General Hospital	Yonkers
Wilson, Carolyn M.	235 Bryant Street	Buffalo
Wright, Anna M.	Nassau Hospital	Mineola, L. I.
Wurtz, Clara A.	200 Wallace Avenue	Buffalo
Yokus, Frances C.	Manhattan Eye, Ear, Nose and Throat Hospital	New York
Ziegler, Martha T.	427 Linden Boulevard	Brooklyn

NORTH CAROLINA

Aynes, Edith A.	Station Hospital	Fort Bragg
Bieberdorf, Bertha	Memorial General Hospital	Kinston
Clark, Irene S.	Roanoke Rapids Hospital	Roanoke Rapids
Derrick, Ora	James Walker Mem'l Hosp.	Wilmington
Draughon, Mrs. Ella A.	Watts Hospital	Durham
Fleming, Maude M.	Box 327	Louisburg
Goodman, Eliza D.	Duke University Hospital	Durham
Green, Annie L.	Randolph Hospital	Asheboro
Hamm, Mrs. Alma S.	Duke Hospital	Durham
Hardin, Mary S.	Rutherford Hospital	Rutherfordton
Henley, Jamie	N. C. O. Hospital	Gastonia
Jeffreys, Claudia L.	Watts Hospital	Durham
La Chance, Mrs. Lola J.	Memorial Hospital	Charlotte
Luther, Nell	93 White Fawn Drive	Asheville
McKeon, Anna	City Memorial Hospital	Thomasville
Medlin, Mrs. Addie F.	Rt. 1, Box 133	Roanoke Rapids
Muhleman, Nancy L.	Duke Hospital	Durham
Salmon, Carrie I.	Rex Hospital	Raleigh
Scarborough, Mante	Presbyterian Hospital	Charlotte
Sellars, Bessie L.	416 Front St.	Burlington
Smith, Carrie	Baker Sanatorium	Lumberton
Snively, Mary H.	Duke University Hospital	Durham
Wilson, Beatrice H.	James Walker Mem'l Hospital	Wilmington

NORTH DAKOTA

Ammentorp, Magna	Deaconess Hospital	Grand Forks
Anderson, Cora L.	St. John's Hospital	Fargo
Berg, Sina	416 Avenue A	Bismarck
Engen, Christine G.	Trinity Hospital	Minot

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Forsch, Martha C.	111 Rosser Avenue	Bismarck
Lybeck, Clara	Deaconess Hospital	Grand Forks
McEwen, Gene	Grafton Deaconess Hospital	Grafton
Morris, Lucile E.	Quain & Ramstad Clinic	Bismarck
Sister M. Alban Deplazes	Mercy Hospital	Valley City
Sister M. Angela Maher	Mercy Hospital	Williston
Sister M. Brendan Tuohy	Mercy Hospital	Langdon
Sister M. Camillus	Mercy Hospital	Valley City
Sister M. Daria Duerr	St. Michael's Hospital	Fargo
Sister M. Dolorosa	Mercy Hospital	Devils Lake
Sister M. Dosithea Swoboda	Trinity Hospital	Jamestown
Sister M. Eugene Liston	Mercy Hospital	Williston
Sister Georgiana Delmore	St. John's Hospital	Fargo
Sister St. Elizabeth Heyn	St. Michael's Hospital	Grand Forks
Sister St. Ignatius	Trinity Hospital	Jamestown
Sister Mary William	St. Joseph's Hospital	Minot
Solberg, Martha S.	Good Samaritan Hospital	Rugby
Stennes, Josephine	Good Samaritan Hospital	Rugby
Truedson, Dorette E.	St. John's Hospital	Fargo

OHIO

Adams, Lou E.	Cleveland Clinic Hospital	Cleveland
Allwein, Aida B.	Mt. Sinai Hospital	Cleveland
Armstrong, Mrs. H. Bonner	242 Piedmont Ave.	Cincinnati
Arnold, Erina M.	St. Alexis Hospital	Cleveland
Auble, Mada C.	613 Home Sav. & Loan Bldg.	Youngstown
Aultman, Mary Lou	Cleveland Clinic Hospital	Cleveland
Aumend, Mrs. Marvil Driver	Mt. Carmel Hospital	Columbus
Barnett, Florence M.	Glenville Hospital	Cleveland
Barth, Alice L. (Life Mem. Amer. Asso.)	Youngstown Hosp. N. S. Unit	Youngstown
Beros, Anna E.***	St. Joseph's Rectory	Toronto
Bischoff, Gretchen P.	City Hospital	Cleveland
Black, Hazel	39 Arch St.	Akron
Boswell, Mrs. Florence H.	1334 Inglewood Drive	Cleveland Heights
Boyer, Elizabeth	701 Parkwood Drive	Cleveland
Boyle, Dorothy Marie	St. Thomas Hospital	Akron
Braatz, Edna M.	3005 Woodbridge Ave.	Cleveland
Bradley, Marian F.	St. Luke's Hospital	Cleveland
Bruchnechter, Marg. R.	2468 E. 124th St.	Cleveland
Burford, Mrs. E. Whyte***		Tiltonville
Burlage, Mrs. Kath. G.***	660 Johnson Ave.	Bedford
Callot, Mrs. Henriette M.	2044 Cornell Rd.	Cleveland
Campbell, Violet	St. Elizabeth's Hospital	Youngstown
Candee, Minerva	University Hospitals	Cleveland
Carney, Helen U.**	Youngstown Hosp. N. S. Unit	Youngstown
Carpenter, Grace E.	Children's Hospital	Cincinnati
Correll, Marion A.	St. Luke's Hospital	Cleveland
Coughlin, Johanna M.	Good Samaritan Hospital	Dayton
Crauder, Dona	107 Stockton Ave.	Dayton
Davis, Ruth L.	City Hospital	Cleveland
Debelak, Josephine M.	Woman's Hospital	Cleveland
Dickerson, Mrs. F. A.	19443 N. Sagamore Drive	Rocky River
Diederich, Mrs. Charlotte	University Hospitals	Cleveland
Dingledine, Margaret	335 N. Robert Blvd.	Dayton
Duffy, Florence	St. Vincent's Charity Hospital	Cleveland
Duffey, Mrs. Madeline	Mt. Sinai Hospital	Cleveland
Ealy, Inez M.	Elyria Memorial Hospital	Elyria
Fichner, Mrs. Jane***	Box 202	Utica
Fife, Mrs. Gertrude L.		

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(Hon.memb. Ohio Asso.)	University Hospitals	Cleveland
Franzen, Elizabeth M.	City Hospital	Akron
Giffin, Eva M.	DeCourcy Clinic	Cincinnati
Graff, Ruth	University Hospitals	Cleveland
Gruler, Imelda Marie	3157 Glenmore Ave., Westwood	Cincinnati
Gruska, Hermina E.	355 Grant St.	Akron
Guthridge, Maria E.	39 Arch St.	Akron
Hale, Mrs. Dessa C.	Hale Hospital	Wilmington
Heckathorn, Helen M.	Charity Hospital	Cleveland
Hollister, Marian	University Hospitals	Cleveland
Kaiser, Emilie	University Hospital	Columbus
Kellogg, Mary Lucile	University Hospitals	Cleveland
King, Mabel E.	Bethesda Hospital	Cincinnati
Kochlauner, Florence E.	University Hospitals	Cleveland
Kochlauner, Frances	University Hospitals	Cleveland
Lott, Anna M.	Good Samaritan Hospital	Cincinnati
McAllister, Mrs. Margaret	10307 Churchill Ave.	Cleveland
McGilliard, Dorothy	223 N. Cooper Ave.	Lockland
McMahon, Janet	University Hospitals	Cleveland
Martin, Neva R.	St. Elizabeth's Hospital	Dayton
Miller, Mrs. Ada	540 McPherson Ave.	Lima
Miller, Mary Frances	Elyria Memorial Hospital	Elyria
Momeyer, Myrn E.*	St. Luke's Hospital	Cleveland
Moore, Clara R.	St. Alexis Hospital	Cleveland
Morgan, Martha A.	12576 Lake Ave.	Lakewood
Parker, Daisy A.	Youngstown Hosp. S. S. Unit	Youngstown
Pfeifer, Christine K.	Children's Hospital	Columbus
Pletz, Mrs. M. Rockwood	9214 Columbia Ave.	Cleveland
Pracejus, Esther C.	Lutheran Hospital	Cleveland
Rathweg, Mary Ruth	Good Samaritan Hospital	Dayton
Renner, Mrs. Naomi Butler	2453 Clybourn Place	Cincinnati
Richards, Lucy E.	City Hospital	Cleveland
Richardson, Margaret P.	Deaconess Hospital	Cleveland
Rinker, Wilma R.	Mt. Sinai Hospital	Cleveland
Romito, Florence	University Hospitals	Cleveland
Rose, Winifred	Cleveland Clinic Hospital	Cleveland
Rothansky, Anna M.	St. Luke's Hospital	Cleveland
Roy, Lillian B.	City Hospital	Cleveland
Russ, Ann L.	424 Alameda Ave.	Youngstown
Sister M. Benignus Leahy	Mercy Hospital	Hamilton
Sr. John Edward Kaiser	Good Samaritan Hospital	Cincinnati
Sister M. John Geierman	Mercy Hospital	Toledo
Sister M. Matthew Regan	Good Samaritan Hospital	Cincinnati
Salinsky, Mary Jane	39 Arch St.	Akron
Sargeant, Florence V.	Cleveland Clinic Hospital	Cleveland
Sauers, Mildred	City Hospital	Cleveland
Scott, Margaret	Good Samaritan Hospital	Cincinnati
Sheehan, Kay	Cleveland Clinic Hospital	Cleveland
Sloat, Mildred R.	Mt. Carmel Hospital	Columbus
Stevens, Alcey H.	Youngstown Hosp. S. S. Unit	Youngstown
Stewart, Romaine M.	People's Hospital	Akron
Stillman, Mrs. I. McFadden	7618 Dorothy Ave.	Parma
Taylor, Jeanette	Union Hospital	Dover
Terry, Ann	St. Vincent Charity Hospital	Cleveland
Van Arsdale, Mrs. Myra	St. Luke's Hospital	Cleveland
Walker, Marjory H.	Mt. Sinai Hospital	Cleveland
Walters, Martha A.	Mt. Sinai Hospital	Cleveland
Ware, Mrs. M. Wildermuth (Life mem. Amer. Asso.)	Children's Hospital	Cincinnati
Wass, Agnes A.	Woman's Hospital	Cleveland
Webb, Alma	Cincinnati Gen'l Hospital	Cincinnati

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Weber, Lillian	Women's and Children's Hosp.	Toledo
Wertz, E. Ruth	Evangelical Deaconess Hosp.	Cleveland
Wilkes, Vernie M.	664 N. Park St.	Columbus
Williams, Carolyn	3259 Elland Ave.	Cincinnati
Wise, Mrs. Leila P.	St. Elizabeth's Hospital	Dayton
Yoskey, Julia A.	St. Alixis Hospital	Cleveland

OKLAHOMA

Diefenderfer, Dixie Lee*	Wesley Hospital	Oklahoma City
Gandy, Hellon	Bone and Joint Hospital	Oklahoma City
Graham, Mrs. Estelle	Valley View Hospital	Ada
Johnson, Mrs. Evelyn	McAlester Clinic	McAlester
Loftus, Julia D.*	Harber Hospital	Seminole
Park, Mrs. Eula McNiel	812 Washington St.	McAlester
Pitt, Mrs. Beatrice W.	Wesley Hospital	Oklahoma City
Price, Frances	Wesley Hospital	Guthrie
Smith, Eleanor V.	Wesley Hospital	Oklahoma City
William, Mrs. Bernice E.*	Government Hospital	Lawton

OREGON

Allen, Anna H.	700 S. E. 61st	Portland
Anderson, Mrs.Kathryn M.	1225 28th St.	Milwaukie
Atkinson, Alice E.	Charlton Hospital	Tillamook
Baldwin, Mrs. Louise S.	5923 S. E. Yamhill	Portland
Bennett, Beulah	Oregon City Hospital	Oregon City
Berger, Hulda E.	Salem General Hospital	Salem
Brown, Avis M.	652 Franklin Ave.	Astoria
Brye, Olivia	2800 N. Commercial	Portland
Bunch, Mrs. Josephine A.*	4030 S. W. Condor Ave.	Portland
Butler, Hazel	Box 634	Tillamook
Caraway, Olga L.***	Route 6, Box 231	Portland
Carlile, Mrs. Clarissa J.	831 S. W. Vista Ave.	Portland
Carter, Mrs. Hazel P.***	827 Willamette St.	Eugene
Clendenning, Patricia M.	213 Portland Ave.	Medford
Coleman, Mrs. Marion R.	St. Vincent's Hospital	Portland
Darby, Merwin	2236 S. E. Salmon St.	Portland
Dempsey, Anne	Route 4, Box 190B	Oregon City
Dimig, Mary K.	2800 N. Commercial Ave.	Portland
Doerr, Aimee L.	1821 N. E. Multnomah	Portland
Dow, Mrs. Jean E.	Eugene Hospital	Eugene
Dow, Mrs. Lenore P.	Corvallis Gen'l Hospital	Corvallis
Downing, Ruth	660 Exchange St.	Astoria
Dudley, Gail R.		Fort Stevens
Durno, Mrs. Evelyne R.	1913 Hillcrest Road	Medford
Fagan, Jeanne C.	2207 N. W. Flanders	Portland
Feser, Anne	308 Medical Dental Bldg.	Portland
Fisher, Kathryn	2282 N. W. Northrup St.	Portland
Floren, Marie E.	2800 N. Commercial Ave.	Portland
Gammon, Mrs. Edna C.	603 Penntland St.	The Dalles
Giddings, Margaret	6425 N. E. Alameda	Portland
Grunefelder, Emma E.	Jones Aprts. No. 5	Bend
Hagerty, Cora***	Columbia Hospital	Astoria
Harris, Mrs. Louise E.***	6325 S. E. Morrison St.	Portland
Holmes, Amelia L.	Box No. 142	Talent
Hynson, Mrs. Gene	Eugene Clinic and Hospital	Eugene
Johnson, Mrs. Elizabeth D.	2005 — 28th St.	Milwaukie
Johnson, Katherine	Community Hospital	Medford
Krumbein, Mrs. Mary G.	2327 S. E. 24th Ave.	Portland
Laird, Mrs. Rosena	Route No. 3	Eugene
La Valla, Margaret	Emanuel Hospital	Portland

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Lemke, Mrs. Evelyn Chase	1450 State St.	Salem
Love, Mrs. Margaret H.	2207 N. E. 19th St.	Portland
McCorkle, Mrs. Clara M.	Klamath Valley Hospital	Klamath Falls
McDonald, Lillian M.	Salem General Hospital	Salem
McElligott, Mabel	4705 N. E. Mallory Ave.	Portland
McGee, Agnes	2328 N. W. Everett St.	Portland
Markworth, Marjorie R.	2284 N. W. Everett	Portland
Martin, Sylvia J.**	2282 N. W. Northrup St.	Portland
Morrison, Mrs. Marg. R.	824 S. E. 69th Ave.	Portland
Morse, Mrs. Cecile L.***	Mid-Columbia Hospital	The Dalles
Nelson, Carrie L.	1925 S. E. 56th Ave.	Portland
O'Brien, Mrs. Daisy	Holmes Lane	Oregon City
Ogelsby, Fannie M.	Deaconess Hospital	Salem
Paulson, Ida C.	Oregon City Hospital	Oregon City
Pobochenko, Mrs. Ruth	5714 S. E. Belmont	Portland
Sister Agnes de Boheme	St. Vincent's Hospital	Portland
Sister Anna H. Duerkson	665 S. Winter St.	Salem
Sr. M. Bernardo Morrish	St. Vincent's Hospital	Portland
Sr. Edward Mary Furney	St. Vincent's Hospital	Portland
Sr. Mary Lawrence Allen	St. Elizabeth's Hospital	Baker
Sister Ottilia	St. Mary's Hospital	Astoria
Saults, Fern E.	2800 N. Commercial Ave.	Portland
Schwartz, Martha M.	Good Samaritan Hospital	Portland
Scott, Alice C.	2282 N. W. Northrup	Portland
Sellers, Alice E.	Sacred Heart Hospital	Eugene
Shelton, Mrs. Florence T.	Rt. 8, Box 376, Canyon Drive	Portland
Spinning, Marion F.***	1715 N. E. 45th Ave.	Portland
Svenson, Mrs. Emma H.	3932 N. Albina Ave.	Portland
Swearingen, Phyllis	Community Hospital	Medford
Tautfest, Frances	911 S. E. 60th Ave.	Portland
Vermullen, Angela	2307 N. W. Hoyt St.	Portland
Walker, Mrs. N. Faye	Good Samaritan Hospital	Portland
Wilhelm, Mrs. Hazel I.	3424 N. E. Tillamook St.	Portland
Wilmot, Katurah M.	2026 S. E. Elliott Ave.	Portland
Zell, Gladys H.	1195 N. 14th St.	Salem

PENNSYLVANIA

Abary, Edith E.	Harrisburg Hospital	Harrisburg
Anderson, Thorene G.	81 Katherine St.	Port Allegany
Andrews, Mabel I.	6205 Alder St.	Pittsburgh
Baker, Alma G.	Brookville Hospital	Brookville
Bancroft, Mrs. Agnes W.	c/o Dr. Kent, 3434 Queen Lane, East Falls	Philadelphia
Barclay, Mrs. Mary H. W.	Uniontown Hospital	Uniontown
Barie, Elfreda T.	St. John's Hospital	Pittsburgh
Beringer, Mary Louise	Rochester General Hospital	Rochester
Bettinger, Agnes E.	Soldiers Orphans School	Scotland
Bingel, Esther A.	St. Luke's Hospital	Bethlehem
Bissett, Mary E.	Conemaugh Val. Mem'l Hosp.	Johnstown
Body, Mrs. Martha S.	Cemetery Rd.	West Newton
Borgstrom, Hilma C.	Stetston Hospital	Philadelphia
Botsford, Ruth	Western Pennsylvania Hosp.	Pittsburgh
Bowkley, Naomi E.	Wyoming Valley Homeopathic Hospital	Wilkes Barre
Boyer, Mrs. Alice P.	1392 State St.	Sharon
Brady, Sara I.	2117 Carson St.	Pittsburgh
Bransford, Mrs. Edna H.	2110 Venango St., Box 45, Arden Hall	Philadelphia
Breakey, Nettie		Brookville
Breslin, Mae C.	Osteopathic Hospital	Philadelphia

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Briggs, Mrs. Marian R.	309 Mattison Ave.	Ambler
Bucher, Sara K.	610 W. Lemon St.	Lancaster
Burkett, Cleo P.	954 Bedford St.	Johnstown
Cadwallader, Marian F.***	9500 Hilspach St.	Philadelphia
Campbell, Clara B.	332—6th Ave.	McKeesport
Carlino, Mrs. Lois B.	102 Adler St.	Punxsutawney
Carpenter, Lena	1015 Wyoming Ave.	Exeter
Casey, Josephine D.	Fitzgerald-Mercy Hospital	Darby
Chapman, Mrs. Mildred K.	Metropolitan Hospital	Philadelphia
Ciszek, Florence S.	Locust Mt. Hospital	Shenandoah
Clancey, Eileen E.	2929 Knowlson Ave.	Pittsburgh
Clarke, Gertrude R.	Chestnut Hill Hospital	Philadelphia
Cleaver, Kathryn E.	Mercy Hospital	Wilkes Barre
Cogswell, Mrs. Gilly Davis	3262 Wainbell Ave.	Dormont
Connolly, Mrs. Pearl S.	1542 Easton Ave.	Bethlehem
Cool, Mary E.	West Penn Hospital	Pittsburgh
Costello, Ella T.	Montefiore Hospital	Pittsburgh
Crawley, Stella M.	637 Indiana Ave.	Glassport
Curro, Catherine M.	2610 Sassafras St.	Erie
DaGrossa, Millie	1815 Spruce St.	Philadelphia
Davies, Marian	Moses Taylor Hospital	Scranton
Davis, Edith*	Allentown Hospital	Allentown
Davis, Elizabeth M.	Palmerton Hospital	Palmerton
Davis, Mrs. Hester V. P.	Germantown Hospital	Philadelphia
Degutis, Margaret M.	Pottsville State Hospital	Pottsville
Dibert, Helen L.	Altoona Hospital	Altoona
Dickinson, Mary	Lankenau Hospital	Philadelphia
Donavan, Rose G.	Mt. Sinai Hospital	Philadelphia
Dougherty, Gertrude I.	Charleroi-Monessen Hospital	North Charleroi
Dowling, Mrs. Ruth Cooke	700 Sheridan Ave.	Pittsburgh
Ellsworth, Catherine C.	Williamsport Hospital	Williamsport
Emerick, Ida McK.	Rochester General Hospital	Rochester
Evans, Mrs. Evelyn	Hahnemann Hospital	Scranton
Foster, Anne B.	Citizens General Hospital	New Kensington
Freeland, Mrs. Eva Ward	Greene County Mem'l Hosp.	Waynesburg
Fulton, Faye L.	Methodist Episcopal Hospital	Philadelphia
Furlong, Rose L.	Jewish Hospital	Philadelphia
Gagliardi, Katharine	Lankenau Hospital	Philadelphia
Garvey, Helen R.	Blair Mem'l Hospital	Huntingdon
Geist, Mrs. Nancy Shirreffs	5302 Spruce St.	Philadelphia
George, Rebekah W.	Shadyside Hospital	Pittsburgh
Giffen, Margaret M.	Women's Hospital	Pittsburgh
Gigliotti, Yolanda F.	Canonsburg Gen'l Hospital	Canonsburg
Gilmore, Ruth S.	Butler County Mem'l Hosp.	Butler
Glenn, Marie G.	Maple Ave. Hospital	DuBois
Glinz, Mary J.	Kensington Hospital	Philadelphia
Goff, Anne C.	720 Marlyn Rd.	Philadelphia
Goodell, Mrs. Ruth Lynn***	921 Helen Ave.	Lancaster
Goodwin, Dorothy C.	Wilkes-Barre Gen'l Hospital	Wilkes Barre
Grant, Anna K.	Presbyterian Hospital	Pittsburgh
Greaves, Elizabeth	1812 Spruce St.	Philadelphia
Grissinger, Mrs. Loretta A.	"Woodbine," Route 53	Somerset
Hagenbach, Beatrice	Maple Ave. Hospital	DuBois
Hammond, Mary B.	Lying-In-Hospital	Philadelphia
Hammond, Mrs. Theresa A.	7536 E. Tulpehocken St.	Philadelphia
Harley, Mrs. Myrtle	119 North St.	Bloomsburg
Hartenstein, Jessie Motley	925 N. 63rd St.	Philadelphia
Hastings, Mildred E.	Graduate Hospital	Philadelphia
Hebert, Mrs. Ethelyn E.		
Hendricks, Martha L.	West Side Hospital	Scranton
Heydt, Mrs. Rebecca M.	Pottstown Hospital	Pottstown

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Hitz, Leta A.	Community Hospital	Kane
Houck, Edna I.	Philipsburg State Hospital	Philipsburg
Hough, Loretta A.	Westmoreland Hospital	Greensburg
Hunter, Bessie F.	Mt. Sinai Hospital	Philadelphia
Hurd, Sara A.	Roxborough Mem'l Hospital	Philadelphia
Ilacqua, Margaret V.	170 Green Lane, Roxborough	Philadelphia
Jacobs, Mrs. Grace H.	408 N 11th St.	Philipsburg
Jarvis, Mary E.	Eye and Ear Hospital	Pittsburgh
Jenkins, Anna T.	State Hospital	Ashland
Jones, Katherine	Elizabeth Steele Magee Hosp.	Pittsburgh
Jones, Verona M.	Uniontown Hospital	Uniontown
Karns, Irene	McKeesport Hospital	McKeesport
Kasonic, Mary M.	431 Pattan St.	Wilmerding
Katterhenry, Matilda	Franklin Hospital	Franklin
Kauffman, Anna Isabelle	Lancaster General Hospital	Lancaster
Kaufmann, Mrs. A. K.***	2419—5th Ave.	Altoona
Keebler, Sarah S.	3523 Aspen St.	Philadelphia
Kelly, Mrs. Alice D.	Mercy Hospital	Scranton
Kelly, Catherine E.	Eye and Ear Hospital	Pittsburgh
Kenney, Ellen E.	State Hospital	Nanticoke
Kimmel, Edith M.	Bryn Mawr Hospital	Bryn Mawr
King, Mrs. Elizabeth Lloyd	7233 Charles St.	Philadelphia
King, Madeleine M.	848 Park Ave.	Meadville
Kissell, Esther M.	Harrisburg Hospital	Harrisburg
Knill, Margaret L.	Reading Hospital	Reading
Knipper, Margaret E.	St. Joseph's Hospital	Philadelphia
Kobojek, Mrs. Stella T.	1906—18½ St.	Altoona
Kolker, Bessye R.	Mt .Sinai Hospital	Philadelphia
Kramlich, R. Margaret	3804 Chestnut St.	Philadelphia
Krause, Helen C.	Temple University Hospital	Philadelphia
Kutz, Anna M.***	50 W. Main St.	Glen Lyon
Lane, Margaret M.	6921 Saybrook Ave.	Philadelphia
Langan, Kathryn L.	1509 Snyder St.	Reading
Leidy, Mrs. Albertine R.	51 N. 40th St.	Philadelphia
Lewis, Hazel M.	Graduate Hospital	Philadelphia
Light, Dorothy C.	115 S. Railroad St.	Hummelstown
Lillig, Mary W.	1920 Spring Garden St.	Philadelphia
Linden, Christine E.	Pittston State Hospital	Pittston
Lindsay, Marcelene***	4600 Chester Ave.	Philadelphia
Lucas, Clara E.	Univ. of Penna. Hospital	Philadelphia
Lutz, Bertha M.	Locust Mt. State Hospital	Shenandoah
MacCullough, Sylvia I.	3919 Palmetto St.	Philadelphia
McFate, Isabel	Memorial Hospital	Johnstown
McGeary, Mary V.	438 Maple St.	Jenkintown
McGoogan, Eleanor J.	Connellsville State Hospital	Connellsville
McLaughlin, Lucille C.	Westmoreland Hospital	Greensburg
McManus, Margaret M.	Abington Memorial Hospital	Abington
McNary, Mrs. Helen B.***	358 Locust Ave.	Washington
McNertney, Doris	State Hospital	Shamokin
Machusak, Anne	Polyclinic Hospital	Harrisburg
Maguire, Sarah A.	Franklin Hospital	Franklin
Mansfield, Dora M.	Elizabeth Steel Magee Hospital	Pittsburgh
Martin, Mrs. Anna Lee***	1830 Delancey St.	Philadelphia
Masterson, Dorothy A.	St. Agnes Hospital	Philadelphia
Matter, Kate M.	320 N. Market St.	Lykens
Mayer, Amelia	Shadyside Hospital	Pittsburgh
Mehold, Caroline S.	Geisinger Mem'l Hospital	Danville
Meighan, Regina M.	Wilkes Barre Gen'l Hospital	Wilkes Barre
Meszaras, Rose	R. F. D. 1—Box 122	Riegelsville
Millard, Elizabeth J.	Lancaster General Hospital	Lancaster

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Miller, Anna J.	5506 — 5th Ave.	Pittsburgh
Miller, Emma A.	1540 Schuylkill Ave.	Reading
Miller, Mary E.	York Hospital	York
Miller, Zella C.	Jameson Mem'l Hospital	New Castle
Minteer, Sara A.	Montefiore Hospital	Pittsburgh
Moes, Mrs. Anna Hovanec	Jameson Memorial Hospital	New Castle
Monske, Freda L.	Univ. of Penna. Hospital	Philadelphia
Moore, Rae E.	Valley Hospital	Sewickley
Morris, Mrs. Mildred M.	1118 E. State St.	Sharon
Morrison, Jessie M.	Chester Hospital	Chester
Morrison, Maria M.	Elizabeth Steel Magee Hosp.	Pittsburgh
Morse, Mrs. Goldie Kohn	6236 N. Broad St.	Philadelphia
Myers, Margaret	Williamsport Hospital	Williamsport
Newcomer, Margaret J.	St. Francis Hospital	Pittsburgh
Noll, Katherine B.	R. D. 2	Stevens
Norwood, Kathryn R.	Canonsburg Gen'l Hospital	Canonsburg
Nystrom, Ida A.	Jeanes Hospital	Philadelphia
O'Hara, Marjorie E.	Mercy Hospital	Johnstown
O'Harra, Marian	197 Washington St.	East Stroudsburg
Oppenheim, Mrs. E. Shotz	Jewish Hospital	Philadelphia
Page, Julia E.	Chester County Hospital	West Chester
Passmore, Ruby G.	Clearfield Hospital	Clearfield
Patterson, Mary A.	Bryn Mawr Hospital	Bryn Mawr
Perry, Mrs. Helen	Geisinger Mem'l Hospital	Danville
Peterson, Esther E.	Chester County Hospital	West Chester
Pflieger, Bregetta F.	Mercy Hospital	Johnstown
Plowman, Katharine A.	Harrisburg Hospital	Harrisburg
Pnellie,Lena M.	Elk County Gen'l Hospital	Ridgeway
Ponesmith, Mrs. Sarah***	236 Walton St.	Lemoyne
Powell, Mrs. Beatrix	29 Bank St.	Bradford
Powell, Dora E.	Taylor Hospital	Ridley Park
Rapp, Elizabeth***	2000 W. Girard Ave.	Philadelphia
Rau, Mary M.	Shelby Hospital	Ellwood City
Ray, Mary M.	Butler County Mem'l Hospital	Butler
Redelberger, Edith K.	1512 W. Louden St.	Philadelphia
Reed, Mildred M.	Chester County Hospital	West Chester
Reigel, Ruth A.	Frankford Hospital	Philadelphia
Richter, Leola M.	Presbyterian Hospital	Pittsburgh
Ritzert, Mildred	Eye and Ear Hospital	Pittsburgh
Roenbaugh, Mary A.	West Penn Hospital	Pittsburgh
Rogus, Helen	Centre County Hospital	Bellefonte
Rose, Anna Marie S.	St. Margaret's Mem'l Hospital	Pittsburgh
Sister M. Alacoque	St. Joseph's Hospital	Pittsburgh
Sister Mary Apollonia S.	P. O. Box 118	Perrysville
Sister M. Audry Wagner	St. Vincent's Hospital	Erie
Sister M. Bonosa	Good Samaritan Hospital	Pottsville
Sister Mary Clarence	Mercy Hospital	Altoona
Sister M. Dacia	Sacred Heart Hospital	Allentown
Sister Mary de Lellis	Misericordia Hospital	Philadelphia
Sr. M. Frances H. Bader	Our Lady of Angels Convent	Glen Riddle
Sister Gertrude Lesuik	719 Brown St.	Philadelphia
Sister Mary Grace King	Mercy Hospital	Johnstown
Sister Joseph T. McHugh	St. Joseph's Hospital	Pittsburgh
Sister Mary Jude McCall	Pittsburgh Hospital	Pittsburgh
Sr. Mary L. Klekotka***	St. Joseph's Hospital	Reading
Sister M. Lucian Gul	Nazareth Hospital	Philadelphia
Sister M. Ludgeris	Sacred Heart Hospital	Norristown
Sr. M. Mercedes McMahon	Pittsburgh Hospital	Pittsburgh
Sister Mary Pulcheria	Sacred Heart Hospital	Allentown
Sister M. Theodefrieda	Sacred Heart Hospital	Allentown

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Sister Mary Theodore Hale	3339 McClure Ave.	Pittsburgh
Salomon, Hilda R.		
Life Mem. Amer. Asso.	Jewish Hospital	Philadelphia
Schissler Ruth I.	Elizabeth Steele Magee Hosp.	Pittsburgh
Schramm, Mrs. N. McAfee	1621 — 4th St.	New Brighton
Schwab, Florence	Temple University Hospital	Philadelphia
Scott, Lora E.	Robert Packer Hospital	Sayre
Sentner, Mary F.	Misericordia Hospital	Philadelphia
Sergeant, Hannah M.	505 Bridge St.	Johnsonburg
Shaughnessy, Helen C.	Doctor's Hospital	Philadelphia
Shekletski, Blanche	3 E. Main St.	Wanamie
Sherlock, Mary Winifred	Fitzgerald-Mercy Hospital	Darby
Sinkler, Elsie B.	41 Summit St.	Philadelphia
Sisson, Daisy	St. Luke's Hospital	Bethlehem
Smith, Mrs. Myrtle W.***	3916 Beechwood Blvd.	Pittsburgh
Snyder, Mrs. Gertrude S.	Temple University Hospital	Philadelphia
Spangler, Grace L.	York Hospital	York
Stewart, Ida	Titusville Hospital	Titusville
Streeter, Charlotte M.	Jamison Mem'l Hospital	New Castle
Suter, Magdalene	Girard College Infirmary	Philadelphia
Taglieber, Mabel	Hill School	Pottstown
Tarsa, Ann	Misericordia Hospital	Philadelphia
Tash, Kathryn L.	523 Hampshire Rd.	Drexel Park
Taylor, Edna M.	Suburban Hospital	Pittsburgh
Thomas, Anna	Wilkes Barre Gen'l Hosp.	Wilkes Barre
Thomas, Sara Shipe	129 E. Edison Ave.	New Castle
Turner, Lillian M.	2517 Bowman Ave.	McKeesport
Ulshafer, Nellie	State Hospital	Hazleton
Ungerman, Florence E.	Shadyside Hospital	Pittsburgh
Van Aux, Caroline	Scranton State Hospital	Scranton
Vichulis, Gussie E.	Germantown Hospital	Philadelphia
Vogel, Adelinda A.	223 Grant Ave.	Millvale
Vogt, Adeline E.	Mercy Hospital	Pittsburgh
Wagaman, Ruth C.	5114 Delancey St.	Philadelphia
Wagner, Mrs. E. Staiger	The Chatham Apts.	Philadelphia
Wagner, Florence E.	Pennsylvania Hospital	Philadelphia
Waldman, Mrs. Doris K.	6610 N. 8th St.	Philadelphia
Walker, Mrs. Helen Young	1824 Wallace St.	Philadelphia
Waller, Mrs. Grace P.	Bloomsburg Hospital	Bloomsburg
Wasserman, Mrs. J. Gilbert	441 Wigard Ave.	Philadelphia
Wells, Mary D.	Lemos B. Warne Hospital	Pottsville
West, Louise	Abington Hospital	Abington
Westbrook, Edith	Episcopal Hospital	Philadelphia
Whitman, Irene	Frankford Hospital	Philadelphia
Wigmore, Mary McBride	Greenville Hospital	Greenville
Williams, Grace	Allegheny General Hospital	Pittsburgh
Windisch, Mrs.E. Freese***	Marion Court Apts.	Philadelphia
Windish, Florence J.	30 S. 3rd St.	Coplay
Wirl, Rosemary	Allegheny General Hospital	Pittsburgh
Witherspoon, Mrs.H. Locke	313 Ridge Ave.	Kittanning
Wolak, Frances	St. Francis Hospital	Pittsburgh
Wood,Mrs. Ruth L.	54 Grove Ave.	Flourtown
Wright, Dorothy E.	Mt. Sinai Hospital	Philadelphia
Yerger, M. Sylvania	Miners Hospital	Spangler
Yocum, Mrs. F. Moyer	365 Mt. Vernon St.	Lansdale
Youngman, Mrs. T. N.***	115 W. Market St.	Danville
Yule, Catherine M.	Moses Taylor Hospital	Scranton
Zack, Emily E.	St. Joseph's Hospital	Reading
Zeiser, Katherine	Green County Mem'l Hospital	Waynesburg
Zellfelder, Marie	6422 Norwood St.	Philadelphia
Zimmerman, Martha	1392 E. State St.	Sharon

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RHODE ISLAND

Hawkins, Mrs. Marjorie S.	General Delivery	Wickford
MacLeod, Katherine G.	Rhode Island Hospital	Providence
Schurman, Myrta J.	1763 Broad St.	Providence
Weinberger, Berte	130 Moore St.	Providence

SOUTH CAROLINA

Adcock, Alice	Columbia Hospital	Columbia
Arndt, Helen E.	Columbia Hospital	Columbia
Ballintine, Ruth	Naval Hospital	Charleston
Beidenmiller, Myrtle E.	Berkeley County Hospital	Moncks Corner
Bennett, Mrs. Dorothy S.	Camden Hospital	Camden
Cotten, Mrs. Eliza D.	239 Calhoun St.	Charleston
Darlington, Thelma C.	Marion Sims Mem'l Hospital	Lancaster
Donnan, Jane	2813 Wilson St.	Columbia
Hinnant, Mary F.	1427 Pickens St.	Columbia
Isley, Nellie	Marlboro Gen'l Hospital	Bennettsville
Meyer, Annie J.	279 Meeting St.	Charleston
O'Leary, Glena B.	Roper Hospital	Charleston
Sister M. Hilda Rieder	St. Philip Mercy Hospital	Rock Hill
Sister M. John Halter***	Providence Hospital	Columbia
Smith, Thelma P.	Conway Hospital	Conway
Verner, Lucy P.	1319 Bull St.	Columbia
Weidman, Beatrice A.	Roper Hospital	Charleston
Wells, Mrs. Jewell R.	Roper Hospital	Charleston

SOUTH DAKOTA

Bauer, Mrs. Anna L.	Pine Ridge Hospital	Pine Ridge
Cunningham, Helen R.	Sioux Valley Hospital	Sioux Falls
Haugan, Mrs. Eldred G.	Sioux Valley Hospital	Sioux Falls
Hoffman, Edna L.	25½ E. Kemp St.	Watertown
Nelson, Lavina	Brookings Municipal Hospital	Brookings
Reagan, Genevieve	Sioux Valley Hospital	Sioux Falls
Sister M. Camillus Shealy	McKennan Hospital	Sioux Falls
Sister Mary Celine***	St. Joseph's Hospital	Mitchell
Sister M. Donata Bentele	Sacred Heart Hospital	Yankton
Sister M. Elizabeth Seman	St. John's Hospital	Rapid City
Sister M. Eulalia	St. Joseph's Hospital	Mitchell
Sister M. Laurentia Schendt	St. Joseph's Hospital	Deadwood
Sister Mary Luke	McKennon Hospital	Sioux Falls
Sister M. Magna Henggeler	St. Mary's Hospital	Pierre
Sister M. Rose McCormick	St. Luke's Hospital	Aberdeen
Sister Mary William***	St. Joseph's Hospital	Mitchell
Skinner, Mrs. Marjorie M.	St. Joseph's Hospital	Deadwood

TENNESSEE

Baxter, Ethel	175 S. Camilla St.	Memphis
Bryant, Nettie M.	1224 Exchange Bldg.	Memphis
Caldwell, Bessie*	Takoma Hosp. & Sanitarium	Greeneville
Caldwell, Mazie L.	919 E. McLemore Ave.	Memphis
Clayton, Mrs. Marion B.	1213 Litton St.	Nashville
Crabtree, Willie Carr	500 W. 7th St.	Columbia
DeLoach, Mary T.	580 Cambridge Ave.	Memphis
Dill, Lelia Bennette	Vanderbilt Hospital	Nashville
Donk, Louise de Vries	2119 Garland	Nashville
Estes, Mary Laird	Children's Hospital	Chattanooga
Fink, Jewelle C.	899 Madison	Memphis
Halford, Louise Green	Woodmont Terrace, Apt. E-2	Nashville
Hawne, Ruthie E.	1317 Eastmoreland	Memphis
Haynes, Ola Mae	Baptist Hospital	Memphis

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Hobson, Mrs. Archie D.	Box 1465	Knoxville
Holland, Zelia C.	St. Joseph Hospital	Memphis
Houser, Mrs. Jennie	899 Madison	Memphis
Jarrell, F. Beatrice	716 Churchwell Ave.	Knoxville
Johnson, Arline S.	Methodist Hospital	Memphis
Jones, Mrs. Mary Isobel		Bruceton
Karlovic, Mrs. Mary S.	Robert E. Lee Apt. No. 40	Nashville
Kittle, Nancy	John Gaston Hospital	Memphis
Kyker, Charlotte K.	402 Medical Arts	Knoxville
Little, Alice	Methodist Hospital	Memphis
Miller, Thelma Mae	109½ Louise Ave.	Nashville
Milligan, Mary	Colonial Apts.	Nashville
Mehearg, Ida R.	Nashville General Hospital	Nashville
McAfee, Harriet	Lincoln County Hospital	Fayetteville
McCammon, Zella Harris	John Gaston Hospital	Memphis
McCue, Mary Ellen	Baptist Hospital	Memphis
McElroy, Mary Jean	1914 Grand Ave.	Nashville
McNeill, Lillie	1909 West End Ave.	Nashville
O'Brien, Jean	869 Madison	Memphis
Sister Estelle Helwick	St. Thomas Hospital	Nashville
Scott, Mrs. Jewell McLain	1220 Madison Ave.	Memphis
Seip, Elsie Irene	Chamberlain Mem'l Hospital	Rockwood
Sellers, Ethel	1236 Madison	Memphis
Sharpe, Marion Martiel	Rutherford Hospital	Murfreesboro
Sims, Alice M.	1301 Eastmoreland	Memphis
Skeen, Alberta M.	Methodist Hospital	Memphis
Stephens, Margaret Eliz.	325—22nd Ave.	Nashville
Stewart, Frances V.	Protestant Hospital	Nashville
Sullivan, Mrs. Alberta K.	48 S. Diana St.	Memphis
Swetman, Minnie E.	U. S. Marine Hospital	Memphis
Templeton, Dorothy M.	Methodist Hospital	Memphis
Trail, Mrs. Theresa W.**	615 N. Willett St.	Memphis
Troster, Mrs. Gertrude	654 Stonewall Place	Memphis
Vermillion, Mrs. Esta M.	Holston Valley Comm'ty Hosp.	Kingsport
Vickers, Hattie	Vanderbilt University Hospital	Nashville
Walker, Mrs. Mary R.	Box 955	Madison
Waller, Sarah Hall	705 East Churchwell Ave.	Knoxville
Williams, Jennie Florence	St. Joseph Hospital	Memphis
Wolff, Waverlyn	632 McDavitt	Memphis

TEXAS

Alvey, Zelma E	St. Paul's Hospital	Dallas
Anderson, Adelia M.	1302 Main St.	Lubbock
Armstrong, Jessie	R. R. 2	Corsicana
Arnold, Nancy	1114 N. Ochoa St.	El Paso
Aycock, Edna Mae	Station Hospital	Fort Sam Houston
Baker, Mrs. Gertrude M.	Shannon Hospital	San Angelo
Baker, Mamie L.	1812 Seventh St.	Wichita Falls
Barker, Mrs. Ola Olmstead	Cook Memorial Hospital	Ft. Worth
Beach, Mrs. Emma B.	Kilgore Memorial Hospital	Kilgore
Beck, Osa	Medical and Surgical Clinic	San Angelo
Behrns, Mrs. Ida Moore	Heights Hospital	Houston
Bevers, Mrs. Avis McK.	2219 Carnes	Dallas
Bomen, Mrs. Eunice	Wilson N. Jones Hospital	Sherman
Bovey, Laura M.	Jefferson Davis Hospital	Houston
Browne, Evelyn	John Sealy Hospital	Galveston
Buckner, Mrs. Margaret	St. Joseph's Hospital	Ft. Worth
Cable, Marcella Ann	Hermann Hospital	Houston
Chandler, Mrs. Willie C.	Clinic Hospital	Wichita Falls
Childress, Mrs. Fern S.	713 W. Ave. G.	Temple

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Childress, Mrs. Jack K.**	716 W. Ave. G.	Temple
Colyer, Opal	Hillcrest Memorial Hospital	Waco
Compton, Mrs. Jessie Lee	702 Winston St.	Dallas
Crump, Christine	1106 Louisiana	Houston
Davies, Wilhelmina	Clinic Hospital	San Angelo
Davis, Clara Fern	Wichita Falls Clinic Hospital	Wichita Falls
DeLay, Martha	Paris Sanitarium	Paris
Denison, Grace	Wichita General Hospital	Wichita Falls
DeVet, Friedah M.	508 Norwood Bldg.	Austin
Dickinson, Agnes G.	Wichita Falls Clinic & Hosp.	Wichita Falls
Didner, Helen	Providence Hospital	Waco
Drucke, Cliffie B.	City Hospital	Waco
Dumas, Frances Ellen	Graham Hospital	Graham
Eull, Mrs. Myrtle Rogers	616 Fannin St.	Houston
Foster, Orpha V.	Jefferson Davis Hospital	Houston
Franson, Delphine	All Saints Hospital	Ft. Worth
Frugé, Allie Mae	John Sealy Hospital	Galveston
Futch, Mrs. Virginia S.	Western Clinic Hospital	Midland
Gatton, Mrs. Grace R.	424 S. Ballinger	Ft. Worth
Haas, Minnie V.*	1121 E. Mulkey	Ft. Worth
Hackworth, Winnifred	St. Joseph's Infirmary	Houston
Harrist, Mrs. Eliz. M.***	1907—22nd	Lubbock
Headlee, Mrs. Marie S.	Headlee Hospital	Odessa
Hoadley, Dorothy M.	Harris Mem'l Methodist Hosp.	Ft. Worth
Hoffman, Laura	1408 Pa. Ave.	Ft. Worth
Holland, Mrs. Hubert***	2307—6th Ave.	Ft. Worth
Houle, Eugenie Louise	Coffey Clinic	Ft. Worth
Jarman, Vesta Pearl	Robstown Clinic Hospital	Robstown
Jennings, Elizabeth	854 W. Fronton St.	Brownsville
Kemp, Clovis J.	Box 1350	Midland
Kennedy, Mrs. Vergie E.	Hemlock Memorial Hospital	Abilene
Kibler, Vanda L.	Harris Memorial Hospital	Ft. Worth
Kirven, Sarah	Torbett Sanitarium	Marlin
Knebel, Viola E.	Crockett Clinic	Crockett
Knight, Sallie F.	Baylor University Hospital	Dallas
Kosanke, Allie F.	303 S. Broadway	Tyler
Larsen, Mrs. Sylvia J.***	Box 973	Pampa
Laughlin, Doris H.	Southwestern Gen'l Hospital	El Paso
Layer, Virginia Lee	104 Buena Vista	San Antonio
Long, Perle E.	Texas Scottish Rite Hospital	Dallas
Manson, Mrs. Virtrece A.	Med. Detachment, 265 C. A. Ft. Crockett	Galveston
Mercer, Ora Lee	3359 Parkridge	Ft. Worth
Moriarty, Vera	621 N. Hill	Dallas
Morse, Mrs. Lydia C.	Jefferson Davis Hospital	Houston
McBride, Mrs. Thelma	Parkland Hospital	Dallas
McCrumb, Sue W.	c/o C. F. Barnhill	Silsbee
McLeod, Catherine S.	McKinney City Hospital	McKinney
O'Connor, Mrs. Inez E.	Wichita Falls General Hosp.	Wichita Falls
Riek, Lucia L.	4934 Tremont	Dallas
Sr. Mary Rob. Armstrong	St. Joseph's Hospital	Wellington
Sage, Mrs. Dorothy Lee	4310 Junius St.	Dallas
Shievers, Mrs. Cassie D.	Red River Co. Hospital	Clarksville
Shivers, Janie	201 Nacogadoches	Jacksonville
Snyder, Mrs. Eva B.	Memorial Hospital	Quanah
Sterling, Mrs. Rena R.	1102 W. Howell St.	McKinney
Strange, Beulah	Baylor Hospital	Dallas
Teague, Madge Marie	Parkland Memorial Hospital	Dallas
Thompson, Rosemary	507 Water St.	Waxahachie
Thompson, Mrs. Velma G.	Baylor University Hospital	Dallas

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Tuley, Mrs. Gertrude Smith	415 Medical Arts Bldg.	Ft. Worth
Vetesk, Miss Elva Jean	1601 Monroe St.	Amarillo
Voight, E. Thelma	5445 Goodwin	Dallas
Warren, Grace	704 Highland Ave.	Houston
Wilson, Mrs. Hulda Junge	Box 17	Wink
Wratten, Fola M.	Robstown Clinic Hospital	Robstown
Young, Mrs. Ruth Pearl	4623 Belclaire Ave.	Dallas

UTAH

Bergstrom, Mrs. Sarah H.	St. Mark's Hospital	Salt Lake City
Bigler, Asenath	L. D. S. Hospital	Salt Lake City
Case, Mrs. Loretta F.	601 Ninth Ave.	Salt Lake City
Garrison, Mayme C.	L. D. S. Hospital	Salt Lake City
Hall, Annie J.	1138—24th St.	Ogden
Hardes, Mary L.		Price
Hood, Gladys	516 N. 1st, West	Salt Lake City
Madoche, Jean E.	Holy Cross Hospital	Salt Lake City
Mickelson, Anne	Salt Lake Clinic	Salt Lake City
Mulvane, Lucile	Dee Hospital	Ogden
Steel, Janet R.	1545 Logan Ave.	Salt Lake City

VERMONT

Eagles, Beatrice C.	Bishop de Goesbriand Hospital	Burlington
Northrup, Margaretta M.	Springfield Hospital	Springfield
Richards, Maude E.	Brattleboro Mem'l Hospital	Brattleboro

VIRGINIA

Addleman, Ollie M.	Cabaniss Hall	Richmond
Ailstock, Harriet V.	Parrish Memorial Hospital	Portsmouth
Allison, Beatrice	Pulaski Hospital	Pulaski
Anderson, Clara V.	Norfolk General Hospital	Norfolk
Bakes, Cordelia B.	Norfolk General Hospital	Norfolk
Beebe, Mary Anena	Cabaniss Hall	Richmond
Behnke, Lucille R.	213 Wilkes St.	Alexandria
Brandon, Margaret	Retreat for the Sick	Richmond
Cain, Mrs. Leota B.	Clinch Valley Hospital	Richlands
Copeland, Vera G.	St. Elizabeth Hospital	Richmond
Cox, Mrs. Marian A.	Riverside Hospital	Newport News
Doss, Mrs. Julian B.	The Green Oak	Penhook
Dowd, Nova Jane	University Hospital	Charlottesville
Farrell, Agnes M.	St. Luke's Hospital	Richmond
Felgendrager, Rosena J.	Memorial Hospital	Danville
Forgie, Nancy F.	Memorial Hospital	Lynchburg
Gardner, Martha E.	Lewis Gale Hospital	Roanoke
Gaymer, Dorothy	Stuart Circle Hospital	Richmond
Gills, Mary F.	Petersburg Hospital	Petersburg
Hall, Esther H.	Nassawadox Mem'l Hospital	Nassawadox
Hemsley, Ada	Elizabeth Buxton Hospital	Newport News
Houts, Calete	Lynchburg General Hospital	Lynchburg
Irving, Mrs. Geneva F.	Southside Hospital	Farmville
Jensen, Emilie Kerstine	Station Hospital	Fort Monroe
Johnson, Ruth E.		
Lambert, Lillian I.	U. S. Marine Hospital	Norfolk
Lane, Clara Bonner	Clinch Valley Hospital	Richlands
Lawhorne, Mrs. Elsie V.	Clinch Valley Hospital	Richlands
Leftwich, Mrs. Gladys L.	Jefferson Hospital	Roanoke
Luttring, Mrs. Ruth A.	Norfolk General Hospital	Norfolk
MacGregor, Elizabeth N.	Alexandria Hospital	Alexandria
Marberry, Eunice V.**	Jefferson Hospital	Roanoke
Massie, Cora E.	Grace Hospital	Richmond

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May, Roberta	Elizabeth Buxton Hospital	Newport News
Mays, Carrie V.	University Hospital	Charlottesville
McGehee, Nancy Gordon	Cabaniss Hall	Richmond
Nelson, Bernice Agnes	Dixie Hospital	Hampton
Ogle, Cora Lee	St. Alban's Sanatorium	Redford
Pace, Lucyle McLain	2924 Brook Road	Richmond
Payne, Mrs. Minnie Freese	University Hospital	Charlottesville
Riner, Essie F.	947 Carter Road	Roanoke
Robinson, Mrs. Lorene L.	2614 Grove Ave.	Richmond
Rosenbaum, Leah L.	St. Vincent's Hospital	Norfolk
Rudkin, Margaret F.	Johnston Memorial Hospital	Abingdon
Rush, Mrs. Martha Nitsche	Winchester Memorial Hospital	Winchester
Sister Zoe Kelley	St. Vincent's Hospital	Norfolk
Scarce, Rosa B.	Riverside Hospital	Newport News
Schoch, Icie A.	Alexandria Hospital	Alexandria
Scott, Georgia C.*	Lewis-Gale Hospital	Roanoke
Shiley, Marguerite B.	Martha Jefferson Hospital	Charlottesville
Warren, Helen Veronica	Roanoke General Hospital	Roanoke
Whitmer, Nora	Cora Mills Hospital	Woodstock

WASHINGTON

Anderson, Mrs. Louise S.	1901 South G. St.	Tacoma
Anderson, Marion***	1916 So. Washington St.	Tacoma
Anderson, Ruth Ann	Tacoma General Hospital	Tacoma
Andrews, Pearl	600 Central Bldg.	Everett
Arnold, Dorothy L.	Box 980	Aberdeen
Beahan, Elizabeth A.	St. Joseph's Hospital	Tacoma
Beausoleil, Ann	Deaconess Hospital	Spokane
Borgardts, Katherine	E. 1621 Everett St.	Spokane
Bradshaw, Veronica J.	Providence Hospital	Everett
Butler, Mrs. Mae D.	So. 2319 Manito Blvd.	Spokane
Chapman, Sylvia M.	Tacoma General Hospital	Tacoma
Claude, Alice M.	507 Jamieson Bldg.	Spokane
Clayton, Mrs. Lillian Berg	110 Oversby Apts.	Longview
Clifford, Mrs. Louise M.	Morton Hospital	Morton
Davis, Mary E.	Deaconess Hospital	Spokane
Decker, Mrs. Elvina P.	Box 849	Coulee City
Dorweiler, Margaret	U. S. Marine Hospital	Seattle
Edin, Ruth M.	1101—17th Ave.	Seattle
Ellstrom, Edith	Swedish Hospital	Seattle
Emery, Alda M.	St. Anthony's Hospital	Wenatchee
Erdahl, Esther M.	Station Hospital	Fort Lewis
Finney, Mrs. Thelma E.	Jr. Red Cross Clinic	Spokane
Fish, Isabelle	4555—15th N. E.	Seattle
Gamer, Mrs. Olive G.	St. Joseph's Hospital	Tacoma
Gilbert, Mrs. Lorraine	Mt. Carmel Hospital	Colville
Gill, Edyth M.	Pierce County Hospital	Tacoma
Gorsegner, Mrs. Helen N.	1211 S. Peabody St.	Port Angeles
Grams, Charlotte L.	Children's Orthopedic Hospital	Seattle
Grewer, Mrs. Florence T.	Cowlitz General Hospital	Longview
Hendricks, Kathleen	Providence Hospital	Seattle
Herin, Miriel	Maynard Hospital	Seattle
Hohensee, Gladys	211 W. 7th St.	Port Angeles
Houston, Mrs. Genevieve F.	Pierce County Hospital	Tacoma
Hunter, Nora Jean	St. Joseph's Hospital	Aberdeen
Kehoe, Agnes	American Lake Hospital	American Lake
Keller, Hazel C.	Aberdeen General Hospital	Aberdeen
Kenney, Mary M.	Providence Hospital	Seattle
Kerrigan, Mrs. Kathleen	Medical & Dental Bldg.	Seattle
Kester, Mrs. Hilda H..***	329 So. Elm St.	Colville

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Kilbride, Mrs. Rose A.	Rivercrest Hospital	Spokane
Kimmitt, Elizabeth Lucille	General Hospital	Everett
Koski, Elsa A.	Station Hospital	Fort Lewis
Lamb, Onie Joyce	Tacoma General Hospital	Tacoma
Lamp, Mrs. Marie C.***		Harrington
Langlow, Mrs. Mona R.	3822 So. Fawcett St.	Tacoma
Layton, Mrs. Marguerite	So. 702 Lake St.	Colfax
Lee, Martha B.	Puyallup General Hospital	Puyallup
Leonard, Mary E.	Paulson Med. & Dental Bldg.	Spokane
Lothspeich, Sabina	Bryant & Weisman Clinic	Colfax
Maki, Saima M.	Providence Hospital	Seattle
Martinson, Mrs. Mary M.	St. Joseph's Hospital	Aberdeen
McDonald, Nell J.	Washington Minor Hospital	Tacoma
McEachern, Marianne	Puyallup General Hospital	Puyallup
Miller, Lillian C.	708 Stimson Bldg.	Seattle
Morgan, Mrs. Marjorie***	Veterans Hospital	American Lake
Murch, Edna V.	St. Mary's Hospital	Walla Walla
Neilly, Mrs. Eileen L.***	2153—8th Ave., No.	Seattle
Nixon, Mrs. Dorothy G.	13539—15th, N. E.	Seattle
Olsen, Marguerite	St. Elizabeth's Hospital	Yakima
O'Neil, Charlotte V.	St. Luke's Hospital	Spokane
O'Neill, Rose**	1330 Boren Ave.	Seattle
Palmer, Mrs. Henrietta	Washington Minor Hospital	Tacoma
Pecl, Netta	509 American Bank Bldg.	Seattle
Peterson, Helen H.	607 Med. & Dental Bldg.	Seattle
Peterson, Mrs. Mildred*	705 Broadway	Seattle
Pickard, Mrs. Leta M.	Route No. 8	Spokane
Presnell, Mrs. Agnes E.	Newport Hospital	Newport
Purcell, Emily S.	10 So. 9th St.	Yakima
Quirk, Catherine Pat	Piedmont Hotel	Seattle
Reard, Alice E.	Tacoma General Hospital	Tacoma
Roberts, June C.	Sacred Heart Hospital	Spokane
Robinson, Mrs. Helen B.	4815—36th, N. E.	Seattle
Rowlands, Mrs. Nan	Cobb Building Surgery	Seattle
Rudkin, Esther	Deaconess Hospital	Spokane
Rutt, Florence M.	7 South 18th Ave.	Yakima
Sister Aloysia Desy	St. Ignatius Hospital	Colfax
Sister M. Angela	St. Josph's Hospital	Bellingham
Sister M. Baptista O.S.F.	St. Joseph's Hospital	Tacoma
Sister M. Christinia	Sacred Heart Hospital	Spokane
Sr. M. Hercules St.Germaine	Providence Hospital	Seattle
Sr. Jos.of Arimathea Hitu	Providence Hospital	Seattle
Sister Mary Jacunda	St. Martin's Hospital	Tonasket
Sr. Prov. of Sacred Heart	St. Elizabeth's Hospital	Yakima
Sr. Mary Sylvinia Beard	St. Joseph's Hospital	Tacoma
Sister M. Vincent	St. Elizabeth's Hospital	Yakima
Sanford, Harriet J.		Bucoda
Scully, Elizabeth A.	Deaconess Hospital	Spokane
Searcy, Geraldine L.	Mason City Hospital	Mason City
Shapton, Mamie P.***	614 No. G St.	Aberdeen
Sharpless, Mrs. Evelyn M.	1732 McDougall St.	Everett
Shaw, Mrs. Blossom C.	Clark General Hospital	Vancouver
Simonson, Mary	Northern Pacific Hospital	Tacoma
Thomas, Audrey D.	Virginia Mason Hospital	Seattle
Ticknor, Mrs. Rose	743—10th Ave., No.	Seattle
Timerman, Tena	20 Park St.	Walla Walla
Tramm, Mary Eileen	Maynard Hospital	Seattle
Trapp, Clara M.	Sacred Hospital	Spokane
Wakefield, Mrs. Marie F.	511 W. 22nd Ave.	Spokane
Warneke, Myrtle	911 Med. & Dental Bldg.	Seattle

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Wigen, Ragna P.	Ridpath Hotel	Spokane
Wilhelmy, Mrs. Marcella A.	Rockwood Clinic	Spokane
Willcutt, Ethel	St. Ignatius Hospital	Colfax
Zeimantz, Helen	865 S. Monroe St.	Spokane

WEST VIRGINIA

Cooper, Helen C.	Stevens Clinic Hospital	Welch
Blayney, Mrs. Amy C.	Ohio Valley General Hospital	Wheeling
Cooper, Mrs. Helen C.		Premier
de Graf, Hermine	Charleston General Hospital	Charleston
Gwinn, Lorene K.	2726 First Ave.	Huntington
Hoffman, Mabel G.	Route 1	Gormania
Kristof, Mary Y.	Fairmont General Hospital	Fairmont
McClellan, Edna P.	Stevens Clinic	Welch
Reed, Pearl F.	c/o Gleason Reed	Beaver
Maye, Mary M.	Wheeling Hospital	Wheeling
Sister M. Damiana Quack	St. Joseph's Hospital	Buckhannon
Sister M. Richardis Schulte	Sacred Heart Hospital	Richwood
Snyder, Mrs. Violet F.***	206 Duhring St.	Bluefield
Tierney, Mary A.	St. Mary's Hospital	Clarksburg
Weisman, Mrs. Rose S.		Parsons
White, Mary L.	McClung Hospital	Richwood
Whitney, Anne I.	Fairmont General Hospital	Fairmont
Wicker, Mrs. Thelma S.	Beckley Hospital	Beckley

WISCONSIN

Anderson, Elvy H.	Box 85	Granite Heights
Anderson, Myrtle E.	Memorial Hospital	Wausau
Bader, Helen E.	St. Luke Hospital	Milwaukee
Blessin, Mary M.	Richland Hospital	Richland Center
Blickendorfer, Ann	2200 W. Kilbourn Ave.	Milwaukee
Botsford, Daisy G.	Theda Clark Mem'l Hosp.	Neenah
Brennan, Mrs. Florence B.	3669 E. Allerton Ave.	Cudahy
Bridenhagen, Leona	Bellin Memorial Hospital	Green Bay
Bruce, Era J.	Walworth County Hospital	Elkhorn
Campbell, Julia I.	536 North 15th St.	Milwaukee
Donovan, Mary	Milwaukee County Gen'l Hosp.	Wauwatosa
Duncan, Mrs. Ruth A.	Madison General Hospital	Madison
Eberhardt, Dean	Deaconess Hospital	Milwaukee
Edwards, Esther*	Wausau Mem'l Hospital	Wausau
Eldredge, Mildred C.	St. Luke's Hospital	Racine
Endthoff, Margaret M.	St. Clare Hospital	Monroe
Esval, Sigrid	Luther Hospital	Eau Claire
Faraher, Mrs. Helen C.	Madison Gen'l Hospital	Madison
Filla, Julia	Luther Hospital	Eau Claire
Flasch, Ada Mary	St. Mary's Hospital	Milwaukee
Follmar, Ann	St. Joseph's Hospital	Milwaukee
Frusher, Mrs. Marie S.	Madison Gen'l Hospital	Madison
Higgins, Mrs. Leona R.***	2213 Oakridge Ave.	Madison
Horrer, Alice L.	Columbia Hospital	Milwaukee
Jacke, Elizabeth	St. Michael's Hospital	Milwaukee
Jahn, Julia C.	4315 W. Lisbon Ave.	Milwaukee
Johannes, Eleanor E.	St. Michael's Hospital	Stevens Point
Johnson, Mabel E.	Sheboygan Mem'l Hospital	Sheboygan
Kitzman, Beatrice	5000 W. Chambers St.	Milwaukee
Kraft, Marie	Methodist Hospital	Madison
Laughlin, Rose	Mt. Sinai Hospital	Milwaukee
McGinley, Edith	St. Clare Hospital	Monroe
Magnin, Martha M.	St. Joseph's Hospital	Milwaukee
Mayer, Marguerite E.	Marshfield Clinic	Marshfield

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Miller, Helen M.	Bellin Mem'l Hospital	Green Bay
Moberg, Hilda L.	Reedsburg Municipal Hosp.	Reedsburg
Muhle, Tena	Luther Hospital	Eau Claire
Nelsen, Camilla M.	Memorial Hospital	Sheboygan
Nye, Viola	St. Joseph's Hospital	Milwaukee
Phillips, Clara M.	Madison Gen'l Hospital	Madison
Ries, Anna J.	St. Mary's Hospital	Rhinelander
Roeske, Edna	St. Mary's Hospital	Green Bay
Sister M. Agatha Gerber	St. Mary's Hospital	Rhinelander
Sister Annunciata Maas	St. Joseph's Hospital	Chippewa Falls
Sister Baromea	St. Nicholas Hospital	Sheboygan
Sister Mary Bernadette	St. Joseph's Hospital	Milwaukee
Sister Bernadine Shaudis	St. Vincent's Hospital	Green Bay
Sister Capistrana Hylla	St. Vincent's Hospital	Green Bay
Sister Clarissa Donovan	Langlade County Mem'l Hosp.	Antigo
Sister M. Clementia Vogel	St. Elizabeth Hospital	Appleton
Sister M. Conradine Flasch	5000 W. Chambers St.	Milwaukee
Sister M. Corona Pfaeffel	Sacred Heart Hospital	Tomahawk
Sister M. Eliud Alders	St. Joseph Hospital	Beaver Dam
Sister M. Emilia O'Farrell	St. Catherine Hospital	Kenosha
Sister Furniss	St. Joseph's Hospital	Hartford
Sister M. Jeanne Mays	St. Francis Hospital	LaCrosse
Sister M. Joseph Meaden	St. Joseph Hospital	Dodgeville
Sis. M. Mercedes Francken	St. Elizabeth Hospital	Appleton
Sister M. Reginald Wallig	St. Catherine Hospital	Kenosha
Sister Ruth Wendelgass	St. Mary's Hospital	Watertown
Sis. St. Bereniece Poupart	St. Mary's Hospital	Green Bay
Sister M. Stanislaus Hejna	St. Mary's Hospital	Ladysmith
Sister M. Theonilla Henel	St. Mary's Hospital	Wausau
Sister M. Vianney Nevins	St. Catherine Hospital	Kenosha
Sister M. Yvonne Jenn	St. Francis Hospital	La Crosse
Sauer, Olga E.	Milwaukee Hospital	Milwaukee
Schroeder, Norma E.	Milwaukee Hospital	Milwaukee
Sedmihradsky, Lillian	Evangelical Deaconess Hosp.	Milwaukee
Sedwick, Gertrude	Shawano Municipal Hospital	Shawano
Sorenson, Julia	Theda Clark Hospital	Neenah
Strang, Mrs. Helen M.	128 South Park St.	Richland
Taylor, Mrs. Viola M.	2329 N. 34th St.	Milwaukee
Teske, Mrs. Grace-Mary	303 N. 76th St.	Milwaukee
Thielen, Leona A.**	St. Mary's Hospital	Racine
Tinker, Emma C.	1040 North 15th St.	Milwaukee
Ulbricht, Edna L.	St. Luke's Hospital	Milwaukee
Voller, Elizabeth M.	St. Elizabeth Hospital	Appleton
Wagner, Erma F.	St. Mary's Hospital	Milwaukee
Weiss, Rose M.	2320 N. Lake Drive	Milwaukee
Welsh, Mrs. Margaret G.	Milwaukee Hospital	Milwaukee
Werking, Melva V.	St. Joseph Hospital	Milwaukee
Whitmer, Liona E.	3321 N. Maryland Ave.	Milwaukee
Woodrich, Catherine	1709 E. Park Place	Milwaukee
Yanulis, Mary A.	Municipal Hospital	Beloit

WYOMING

Brown, Mrs. Josephine C.	Box 74	Jackson
Carlos, Lillian	Box 367	Sheridan
Hambrick, Mrs. Gladys H.	Carbon County Mem'l Hosp.	Rawlins

HAWAII

Amort, Alvine	Kula Sanatorium	Waiakoa
Anderson, Alice L.	Paia Hospital	Paia, Maui
Anderson, Isabelle M.	Wilcox Mem'l Hospital	Lihue, Kauai

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Barlow, Esther A.	Box 227	Kealakekua
Barton, Rose C.	Robert W. Shingle Jr. Mem'l Hospital	Hoolehua, Molokai
Black, Minnie M.	Tripler General Hospital	Honolulu
Clark, Mildred I., A.N.C.	Schofield Barracks Hospital	Honolulu
de Shazo, Laura E.	Hilo Mem'l Hospital	Hilo
Dumenda, Julia M.	Hilo Hospital	Hilo
Eliasson, Hilda	Queen's Hospital	Honolulu
Gentle, Marjorie M.	Queen's Hospital	Honolulu
Gordon, Mary K.	Queen's Hospital	Honolulu
Grieder, Helen A.	Paia Hospital	Paia, Maui
Killingworth, Aleise	Queen's Hospital	Honolulu
Koshel, Ann Mae	Queen's Hospital	Honolulu
Lamb, Mrs. Margaret W.	Kapiolani Maternity and Gynecological Hospital	Honolulu
Littel, L. Rose	Pahala Hospital	Pahala
MacMillan, Marian	340 Royal Hawaiian Ave.	Honolulu
Reames, Mary F.	1629 Clark St.	Honolulu
Shaver, Mrs. Elvie M.***	Naval Hospital	Pearl Harbor
Shurr, Marvel	Kula Sanatorium	Waiakoa, Maui
Sutcliffe, Roselyn	Queen's Hospital	Honolulu
Terwoord, Colette P.	St. Francis Hospital	Honolulu
CANADA		
Anderson, Mrs. Jennie S.	Chipman Memorial Hospital	St. Stephen, N. B.
Flewwelling, Isabella M.	33 Oliver St.	Guelph, Ont.
Greene, Thelma	858 Wyandotte, E.	Windsor, Ont.
Larkworthy, Mrs.Evangeline	P. O. Box 100	New Hazelton, B.C.
Shaw, Mrs. Clara Stone	1138 Nelson St	Vancouver, B. C.
FOREIGN		
Elliott, Mrs. Helen Gale	Lago Hospital, c/o Lago Oil & Transport Co., Ltd.	Aruba, N. W. I.
Ludwig, Laura Mae	Lago Hospital, c/o Lago Oil & Transport Co., Ltd.	Aruba, N. W. I.
Wetzel, Grace	c/o Standard Oil Co. of N. J. Aruba	San Nicholaas, N.W
Maduro, Esther Ruth	P. O. Box 683	Panama
Relihan, Mrs. Lerlene S.	Box 1068	Balboa, Canal Zone
Yarnall, Catherine E.	U. S. Naval Hospital	Canacao, Philippine Islands
Sawyer, Myra L.	West China Union University Hospital	Chengtu, Szechwan West China

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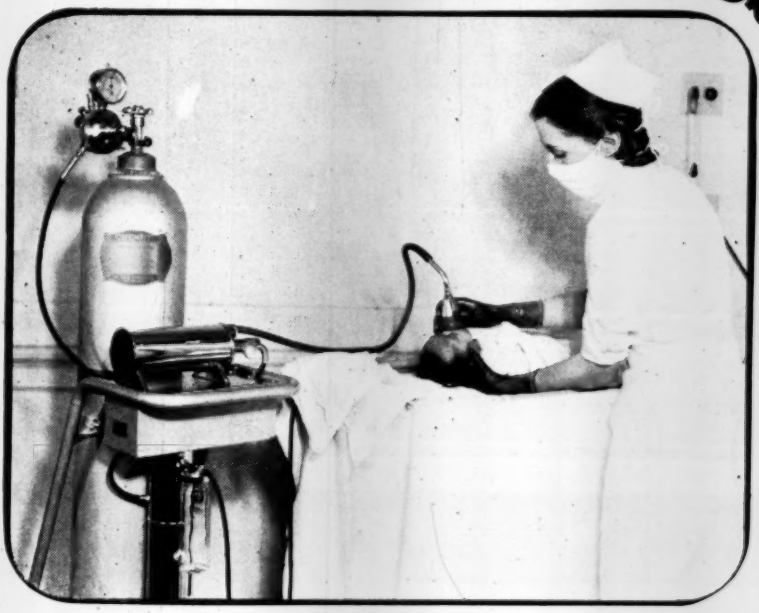

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